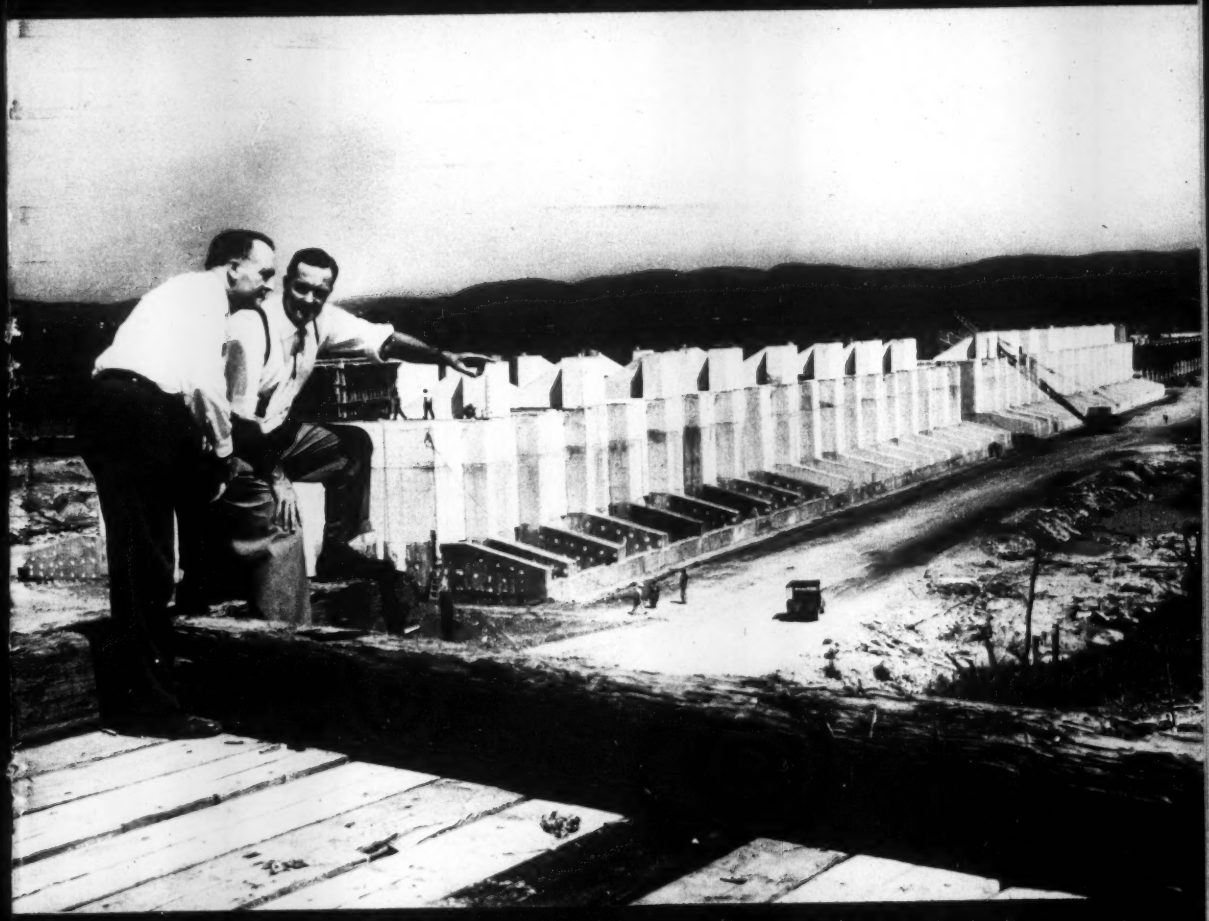
ENGINEERING NEWS-RECORD



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give the Atlantic Beach Bridge "SEA LEGS"

Because of the many hazards that cut down the service life of concrete bridge piers—abrading action in the high and low water range from ice and other floating objects; spalling caused by salt water action and alternate freezing and thawing—the Nassau County Bridge Authority took decisive steps to safeguard the piers of the new $6,000,000 Atlantic Beach Bridge by installing genuine wrought iron protection plates. These plates, fabricated from ⅝-inch Byers Wrought Iron, were made in two sections, set in place within the coffer dam, then welded together. Measuring ten feet in depth to guard the piers throughout the entire tide range, the plates served as concrete forms and are an integral part of the pier structure. Hardesty & Hanover were the designing and supervising engineers and the Frederick Snare Corporation, the contractors. Eastern Steel Tank handled the plate fabrication.

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ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 149 July 31, 1952 No. 5

WALDO G. BOWMAN
Editor

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ROBERT F. BOGER
Publisher

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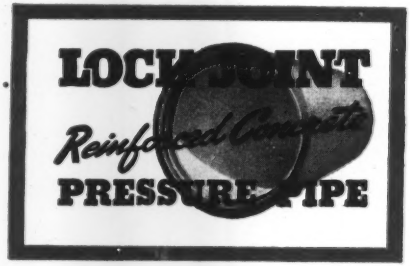

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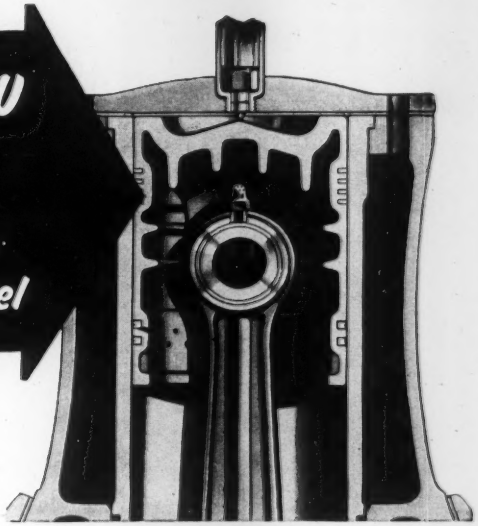

ILLUSTRATED at the right in cross section is the combustion chamber of the Murphy Diesel. Note that it is plain and open with no artificial devices to effect combustion. In operation, completely atomized liquid fuel is sprayed directly into all parts of the air charge by means of the unit injector located in the center of the combustion chamber. Since the fuel burns immediately upon injection into the incandescent air charge, combustion is controlled solely by the unit injector, which in turn is precisely controlled by the hydraulic servo-type governor. This is "true" diesel operation.

To the Murphy owner it means more power from each drop of fuel and less wear and tear on the engine . . . lower costs in all ways.

More details on "true" diesel operation as well as other Murphy features are given in the booklet "10 Questions to Ask a Diesel Engine Salesman." Ask your Murphy Diesel Dealer for a copy or write direct.

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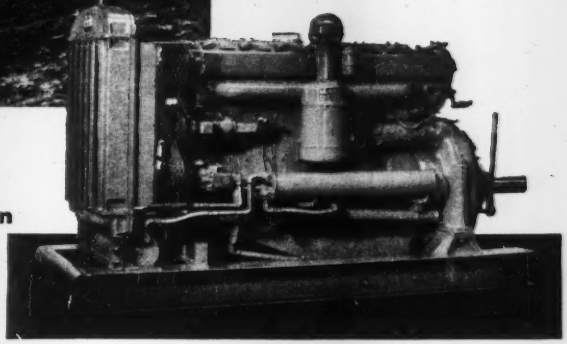
Sales, Parts, Service in All Areas

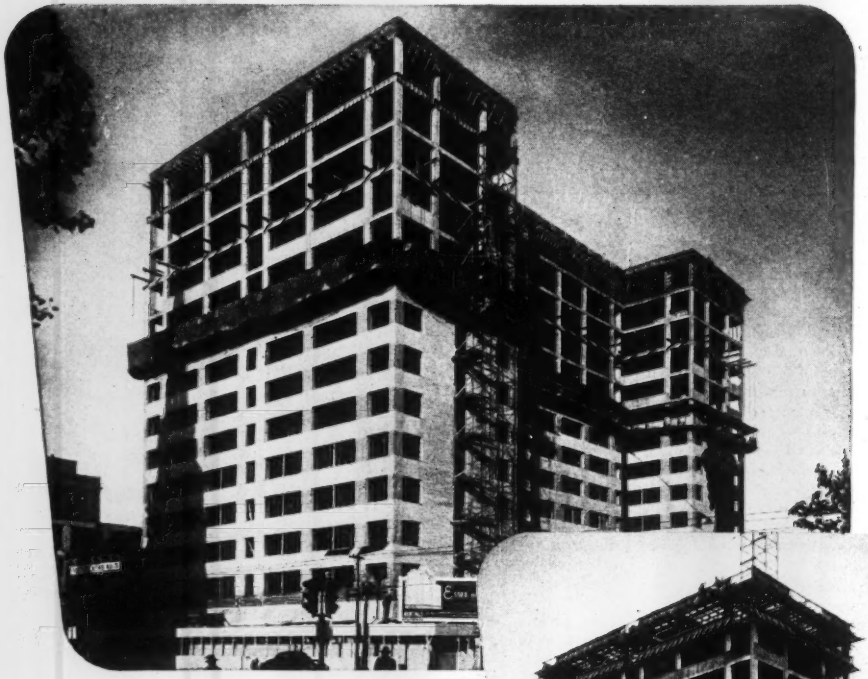
Illustrated is a 30" x 42" Pioneer jaw crusher owned by H. E. Sargent, Stillwater, Maine, and powered by a 6 cylinder Murphy Diesel. The rugged construction, fast response and operating economy of Murphy Diesels make them ideal for this type of service.



***Heavy Duty Power* for construction**

Murphy Diesel Engines and Power Units for construction, 90 to 226 H.P., 1200 and 1400 RPM. Generator Sets, 60 to 140 K.W.

209



Important savings in time, money and materials with CONCRETE FRAMES AND FLOORS

Two views of Essex Apartment House in Indianapolis. Lower photo shows structural work at 9th floor, masonry work starting. Upper photo shows structural work at top floor with masonry work completed to 9th floor. Merritt Harrison, architect; Fink & Roberts, structural engineers; J. L. Simmons Company, contractor. All are of Indianapolis.

These photographs illustrate one of the outstanding advantages of reinforced concrete frame and floor construction. They show how frame and floor work proceed simultaneously. This enables masons, plumbers, electricians and other tradesmen to do their jobs as the structural work progresses and results in substantial savings in time.

Reinforced concrete construction also saves money and materials. It requires a minimum of critical materials. Forms can be reused from floor to floor.

Flat plate or slab band designs reduce or eliminate most of the headroom required for beams and girders in other types of construction. This saves about a full story in height on projects such as the above—with accompanying savings in masonry, partitions, stairs, conduits, ducts and piping.

Concrete frame and floor buildings are low in first cost, require little or no maintenance and give long years of service. The result is ***low annual cost.*** Such buildings also are sturdy, durable, firesafe.

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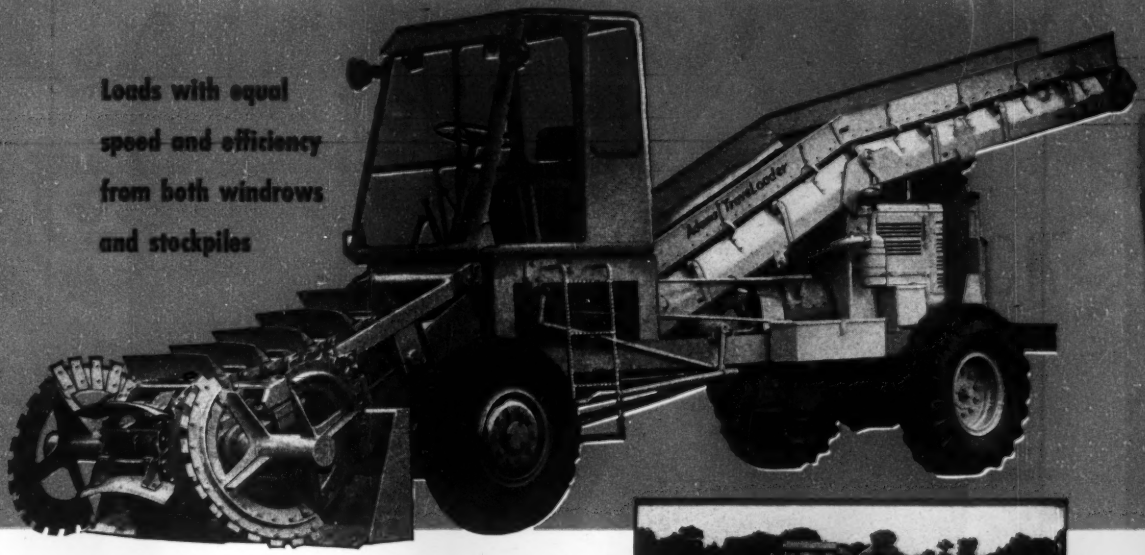

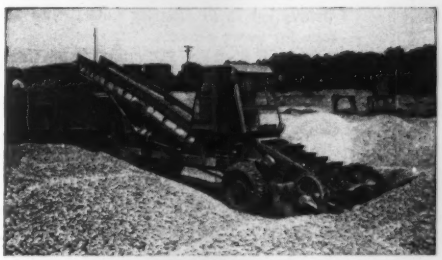

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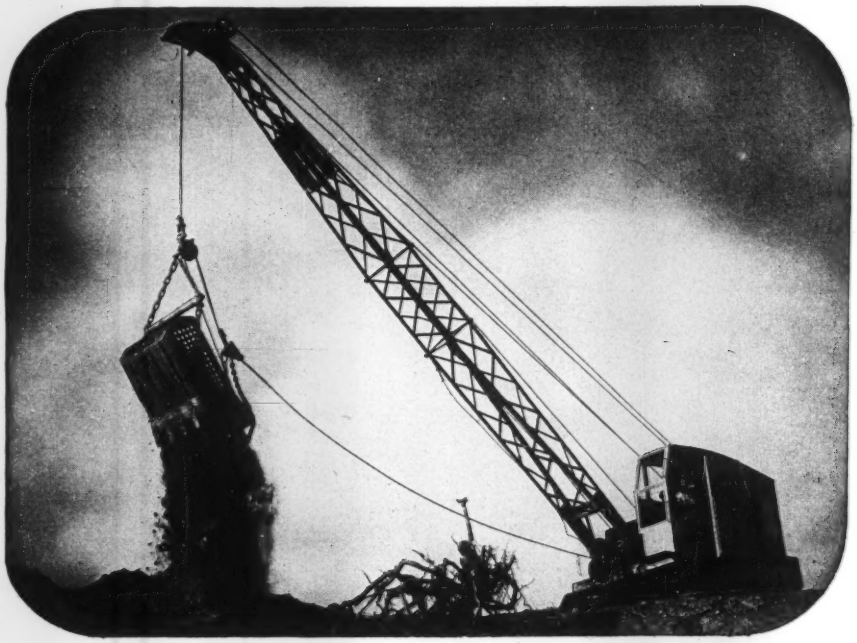

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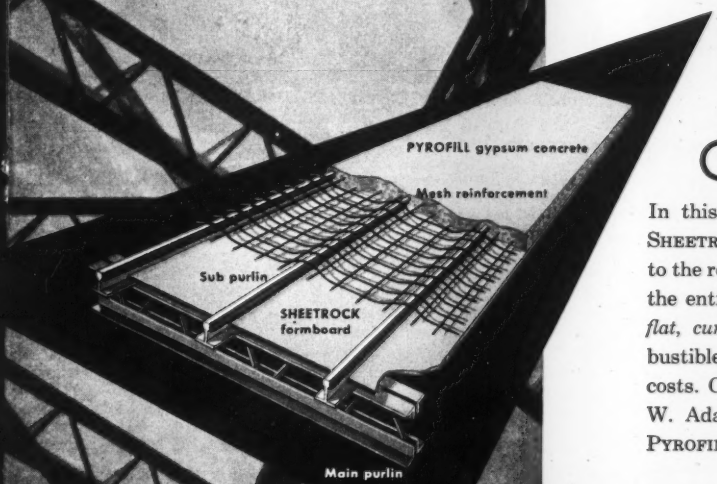

FOR COMPLETE DRAFTING ROOM DETAILS see or write your U.S.G. Architects' Service Department Representative.

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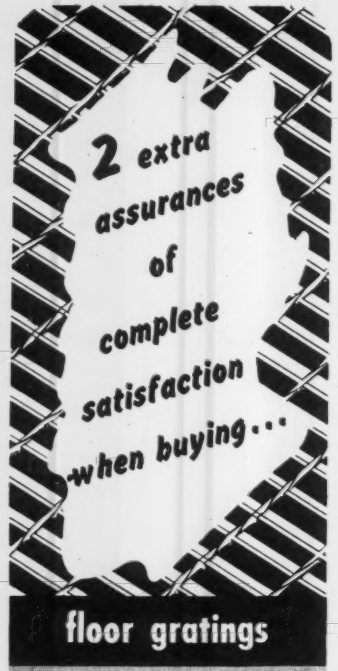

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every type floor
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READER COMMENT

Opposes contractor designs

Sir: I certainly disagree with Charles Mayer, regarding his views on contractors submitting their own design when submitting a bid, and particularly so on work for the U. S. Army Engineers. It often creates situations whereby bidders are on an unequal basis, and when one considers the time and cost involved in preparing a bid, this throws an entirely unwarranted burden on a contractor.

It merely shows a lack of confidence on part of the owner in his choice of architect or engineer. I feel that the owner often is not getting his value in service from the designer: In many instances possible substitutions could be set up by the designer as alternates, thereby giving the contractors a definite design to bid on.

I believe the practice of asking for alternate designs by contractors is definitely not good, and particularly so in the case of Public Works.

FRED O. KOCH
General Contractor
Great Falls, Montana

Complete interpretation

Sir: In your issue of June 12 (p. 17), reporting on "The Construction Week" you give an accurate three-paragraph summary of pending efforts of contractors to have restored the right of review by the courts of decisions of contracting officers of the government, except as follows:

You say that under a recent report (June 4, 1952) of the Judiciary Committee of the Senate: "Appeals can be made to the courts if a decision is considered to be 'fraudulent or grossly erroneous.'"

The report is even more favorable. It provides also for court review of such decisions if they are: "so mistaken as necessarily to imply bad faith or not supported by reliable, probative, and substantial evidence."

ALAN JOHNSTONE
Attorney
Washington, D. C.

The shortage of engineers

Sir: The June 19 issue of ENGINEERING NEWS-RECORD contains two comments on the "shortage" of engineers. On page 50, Vannevar Bush, president of the Carnegie Institution of Washington, is quoted as saying, "It is said that there may be a great lack of engineers in the years ahead. I do not think this is necessarily true if the scope of our profession is enlarged in the manner I have suggested. . . . There is no reason why we should not make engineers out of men from other fields if we need them, especially if they find among us a satisfying opportunity."

On page 92, James P. Growdon, chief hydraulic engineer for the Aluminum Company of America, is quoted as saying, "The way to end the shortage of engineers is to pay engineers more than you pay laborers. . . . One good engineer is worth a dozen mediocre ones on any job."

I vote for Mr. Growdon.

MAX W. STRAUSS,
Civil Engineer,
Los Angeles, Calif.

Contractor designs

Sir: In the matter of contractor's designs, it might be well to recall one or two stubborn fundamentals:

The architect or engineer is or should be the agent of the owner, with the legal obligation of the utmost good faith in the matter of design.

The would-be contractor in competition owes nothing to the owner. He deals with the owner at arm's length.

Is it necessary to say anything more?

R. B. MACFARLANE
Macfarlane and Sadler
Richmond, Va.

Only that those who favor contractor designs, as commonly used in Europe, would not agree that the contractor "owes nothing to the owner." They would say that the contractor, in his own self-interest for his reputation in doing a good job, would make every effort to satisfy the owner.—EDITOR.

Twin swing spans at Suez

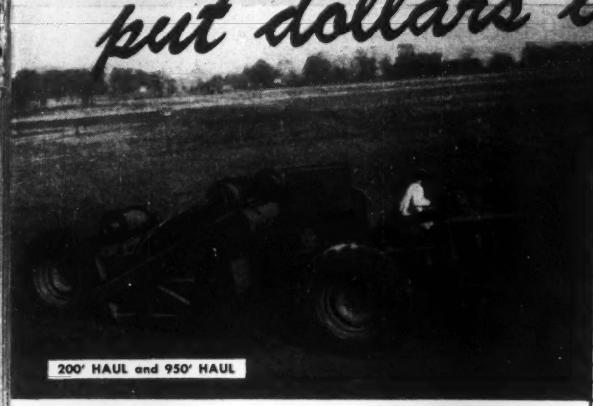
Sir: In connection with the article on the York River bridge (ENR May 8, p. 50), your readers might be interested to know that in 1941 the Suez Canal was crossed at Ferdan also by twin tandem swing spans, leaving a navigable channel of 230 ft. The mechanisms for the twin swing spans were provided by the Egyptian State Railways Administration from parts recovered from old bridges over the Nile. The steel structures were made in India by Messrs. Braithwaite & Co. Engineers Ltd. Screwcrete piles (Braithwaite patent) formed the two piers. The work was carried out successfully at a time when the Suez

(*Continued on page 12*)

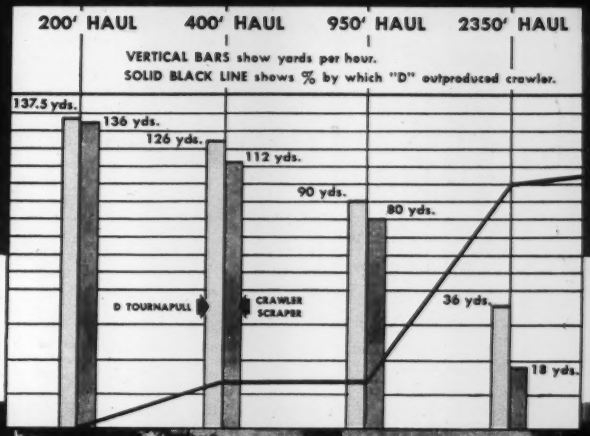
YARDS PER HOUR

not yards per load

put dollars in your pocket

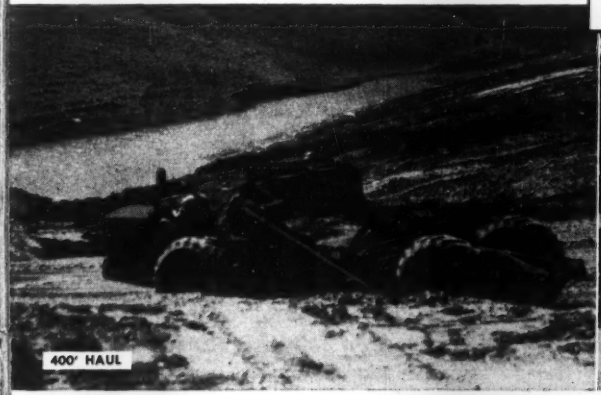


ON LONG and SHORT HAULS, less costly D Tournapulls consistently outproduce larger, slower crawler-scrapers



"D" equals crawler at 200′, adds 12½% at 950′

ROY KOHL, Springfield, Ohio, leveled a 45,000-yd. plant site with 7-yd. D Roadster, and 107 h.p. crawler and 8-yd. scraper. On a 400′ cycle, his "D" self-loaded 5½ pay yds., made 25 trips, delivered 137½ yds. hourly. The crawler outfit, *which costs 25% more than the "D"*, got 8 yds. per load, made 17 trips, delivered only 136 yds. hourly. However, on a 1900′ cycle, 28 m.p.h. "D" made 16½ trips to 6 m.p.h. crawler's 10 . . . moved 90 yds. to crawler's 80.



Boosts output 12½%

C. H. WILHELM of Faulkton, S. D., compared output of his D Tournapull on a soil conservation dam with that of two 11-yd. scrapers drawn by 91 and 101 h.p. crawlers. By actual load count, his "D", self-loading 5½ pay yds. of hard, dry, sandy clay per trip, made 23 trips and placed 126 yds. every hour. The 2 crawler-scrapers, with 7½-yd. loads of the same material, each averaged 15 trips and 112 pay yds. hourly over the same 800′ cycle.

"D" doubles yardage

NEAR TUSCUMBIA, ALA., on cut and fill for a secondary road, this D Tournapull almost doubled the hourly yardage of a 100 h.p. crawler and 8-yd. scraper. The crawler outfit loaded 5½ yds. of common earth in 40 sec., completed a 4700′ cycle every 15.1 minutes. Self-loading 4½ pay yds. in 80 sec., the faster-hauling "D" cut cycle time to 6.3 minutes, made 8 trips to the crawler's 3.3 . . . delivered 36 pay yds. hourly to the crawler's 18.5.

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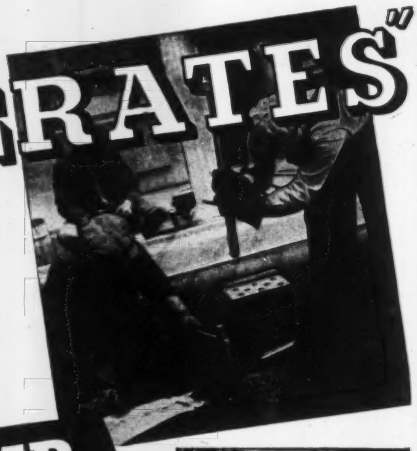

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- *Insure efficiency with safety*
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Klemp's engineers have exclusively specialized in the fabrication of gratings, such as Hexteel Surface Armor and Floorsteel Flexible Floor Armor for reinforcement of all surfaces where concrete or mastic are applied. In addition, they have developed a bridge decking which is the most up-to-date flooring for modern bridges . . . prefabricated to exact specifications.

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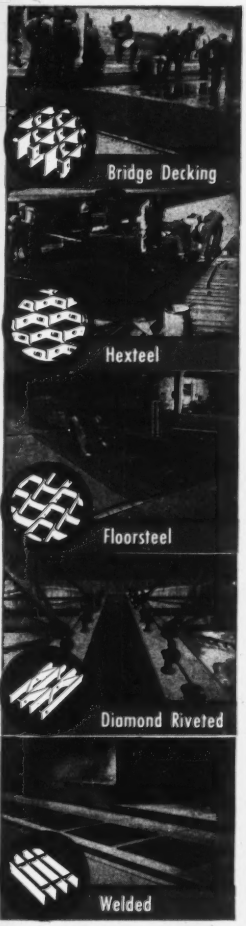

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READER COMMENT

Canal was daily visited by enemy bombers.

The bridge linked Egypt with the Middle East by rail. It proved so useful that a new bridge is being built 4 kilometers south of the existing one, on pneumatic caissons but on the same structural design and providing a 315 ft. navigable channel. Work on the new bridge is now in progress.

S. AKERIB
Manager for Egypt
Braithwaite & Co. Engineers Ltd.
Cairo

Wrong type of roof

Sir: I would like to call your attention to an error in your table of "Facts and Figures" on the new Caterpillar Tractor Company plant at Joliet, Ill., in your issue of May 29, 1952, p. 86. Your heading shows "Roof: Insulated Metal Deck" whereas actually the roof construction is our Federal-Featherweight Structural Concrete Precast Roof Slabs for the total area shown of 1,238,100 sq ft.

This error is especially serious to us, since we have been serving Caterpillar Tractor Co. continuously for 35 years, with many installations for them totaling well over 3-million sq ft of Federal roofs.

C. S. FREUND
President,
Federal Cement Tile Co.
Chicago, Ill.

It's Bull Shoals, Ark.!

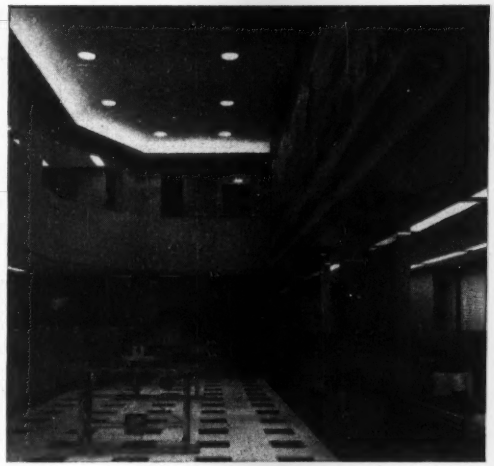
Sir: Regarding your article in the July issue, Bull Shoals Dam is not so near Mountain Home, Ark., (8 miles) as it is 18 miles from the resort town of Bull Shoals (1¼ miles). Being Postmaster in this thriving third-class town, I naturally resent being ignored in all articles I have seen on the dam.

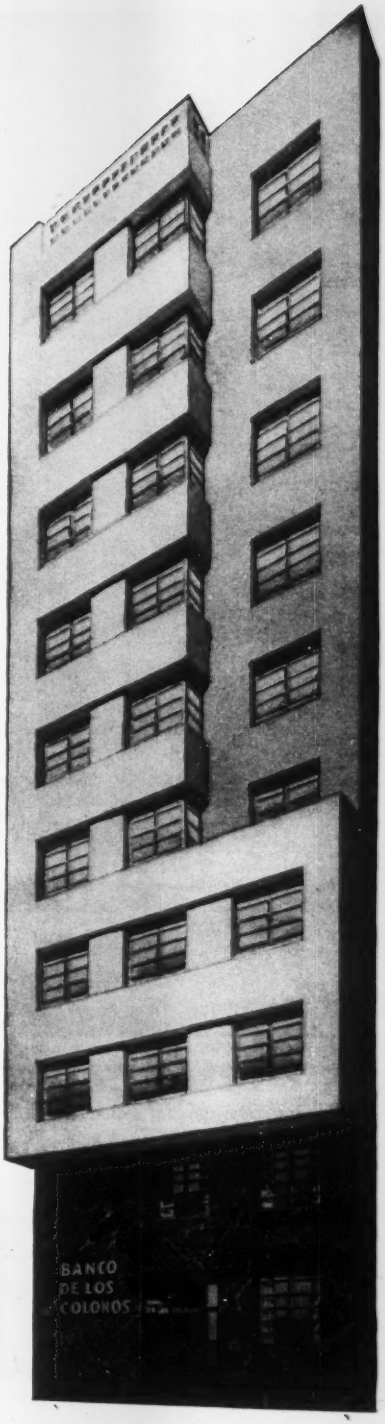
(MRS.) ROSALIE BATCHELDER
Bull Shoals, Ark.

Steel strike permits Ohio pollution tests

Shutdowns in the strike-bound steel industry have given the Ohio River Valley Water Sanitation Commission an unprecedented opportunity to check effect of steel mill wastes on its waters.

ORSanCo's executive director and chief engineer, E. J. Cleary, says preliminary findings show slight increase in alkalinity, slight decrease in hardness and noticeable decrease in coliform bacteria counts.





Monsanto Penta protects against tropical termites

Plywood and wormy chestnut used in the interior of the beautiful, new home of Banco De Los Colonos, Havana, Cuba, get double protection from a pressure-applied formulation of Monsanto Penta.

In this area of tropical humidity, there were two exacting jobs to be done. One, for the owners, who insisted that the wood be protected against drywood and subterranean termites. The second, for the designers, who wanted to insure dimensional stability of the paneling, to prevent cracking and distortion of finishes. A water-repellent solution of Monsanto Penta fulfilled both requirements.

Monsanto Penta (pentachlorophenol) is a stable chemical developed specifically for wood preservation. It does not leach . . . does not wash away in rain or ground water. It protects against termites and other wood-boring insects. It prevents decay.

Whether your designs call for wood in bank interiors or bridge timbers, it will be worth your while to investigate Monsanto Penta. Complete information may be obtained from any Monsanto Sales Office or from MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1700 South Second St., St. Louis 4, Mo.

DISTRICT SALES OFFICES: Birmingham, Boston, Charlotte, Chicago, Cincinnati, Cleveland, Detroit, Houston, Los Angeles, New York, Philadelphia, Portland, Ore., San Francisco, Seattle, Twin Cities. In Canada, Monsanto Canada Limited, Montreal.

Design and Construction	Bank Building & Equipment Corporation of America, St. Louis, Mo.
Wood Treating Preservative	Monsanto Chemical Company, St. Louis, Mo.
Wood Treating Application	Associated Wood Preservers, St. Louis, Mo.
Wood Finishes	Grand Rapids Varnish Company, Grand Rapids, Michigan

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CHEMICALS — PLASTICS

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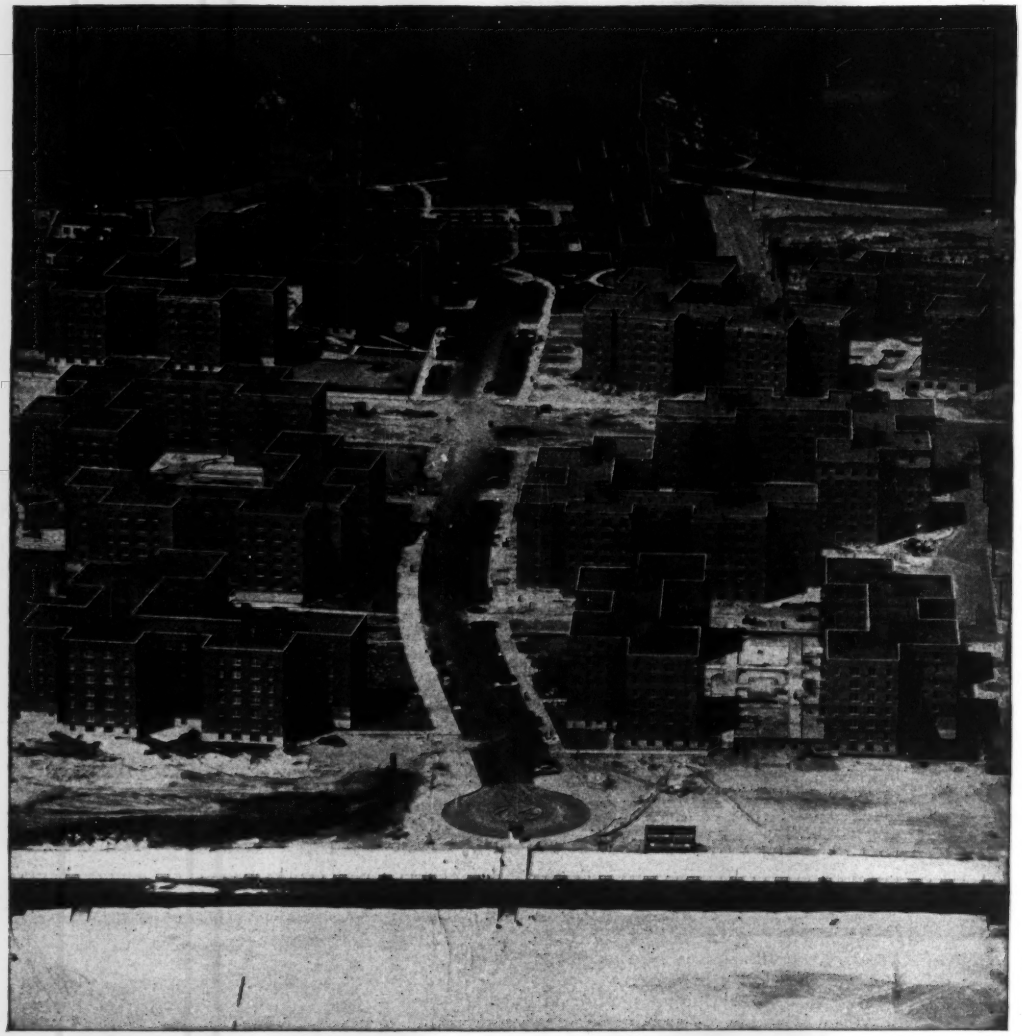

OCEAN-FRONT APARTMENT PROJECT IN QUEENS—This 1656-family apartment development, called Wave Crest Gardens, overlooks the Atlantic Ocean at Far Rockaway, Queens, New York City. It covers 34 acres and consists of fourteen 6-story elevator-equipped buildings, containing apartment units of from 2 to 4½ rooms. Both kindergarten and first-grade classes are proposed for one of the structures. The grounds are attractively landscaped, the roofs of six underground garages, with accommodations for 720 cars, serving as terraces. In each of the structures comprising Wave Crest Gardens, the red-brick facing covers a steel framework of Bethlehem Structural Shapes.

Owner and Builder: Gustave M. Berne; Architects: Maxon-Sells; Steel Fabricator and Erector: Schacht Steel Construction, Inc.—all of New York.

BETHLEHEM STEEL

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TIMKEN CARBIDE-INSERT ROCK BIT

These TIMKEN® rock bits are interchangeable

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DRILLERS need only one type of steel on the job when they use Timken® interchangeable rock bits. Both Timken multi-use and carbide insert bits, in the same series, fit the same threaded drill steel. And they can be changed right on the job!

If you're drilling in ordinary ground, use Timken multi-use bits. If correctly controlled and reconditioned, they'll give you the lowest cost per foot of hole when full increments of steel can be drilled.

If you're drilling in hard, abrasive ground, change quickly to Timken carbide inserts. They are most economical for maximum speed drilling, very deep holes, small diameter blast holes and constant gauge holes.

Interchangeable in each thread size, both Timken multi-use and carbide insert bits have these three important advantages: (1) made from electric furnace Timken fine alloy steel, (2) threads are not subject to drilling impact because of the special union developed by the Timken Company, (3) can be changed quickly and easily.

With 20 years of experience in the rock bit field, the Timken Rock Bit Engineering Service is ready to help you choose the best bits for *your* job. Write The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable address: "TIMROSCO".

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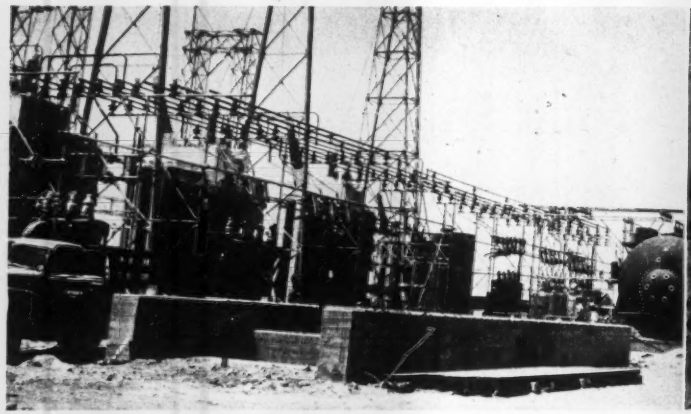
Hydropel Integrally Waterproofs Concrete Best in Competitive Tests

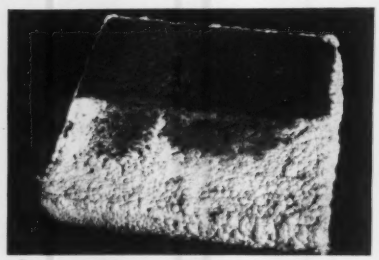


(Top left) **HYDROPEL CONCRETE** foundations, Pacific Gas & Electric Company—Midway Steam Plant.
(Top right) **PLAIN CONCRETE** in same location—showing effect of alkali soils.

PRODUCT	% CAPILLARY ABSORPTION*
ADDITIVE A	8.93
ADDITIVE B	10.60
ADDITIVE C	8.05
ADDITIVE D	8.75
ADDITIVE E	10.19
ADDITIVE F	6.06
ADDITIVE H	10.23
PLAIN CONCRETE (5½ sack)	8.10
AIR ENTRAINED CONCRETE (5½ sack)	7.80
HYDROPEL (5½ sack)	**1.09**

**2" x 4" Cylinder of minus 3/8" material, specimens dry at 140° F.*

TEST RESULTS as tabulated by Pittsburgh Testing Laboratory show comparative capillary water absorption after seven days.



HYDROPEL BLOCK *(top half)* absorbed little of the salt solution in which it was placed till all had evaporated.
Air-entrained concrete *(lower half)* sucked up the solution, leaving destructive salt crystals throughout.

OF ALL WATERPROOFING PRODUCTS, Hydropel® integral admix for concrete ranks highest. Pittsburgh Testing Laboratory proved this in exhaustive tests. Concrete treated with eight major competitive products actually absorbed from five to ten times more moisture than Hydropel-treated concrete. The Pittsburgh technicians also proved Hydropel accomplishes waterproofing *without loss of strength.*

All types of construction benefit:

PAVING ENGINEERS—can build concrete pavements without destructive volume changes due to moisture.

ARCHITECTS—can specify—and get—basement concrete that remains warm and dry—assuring owner-satisfaction.

INDUSTRIAL PLANTS—can have concrete that lasts 4 times longer in bad alkali and moisture conditions.

CONTRACTORS—can, at last, deliver quality concrete for tough places at low premium cost.

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CONSTRUCTION OUTLOOK BRIGHT THROUGH 1953

Builders—now in the middle of the best construction year on record—can look forward to another first-class year in 1953. It looks as if next year's total of construction put in place will come close to matching the record $32 billion expected for this year.

All types of construction won't share the same degree of prosperity, of course. Public construction will be higher in 1953; and total private work is expected to drop. But it's hard—at this point—to foresee any very severe decline.

• **Private Work**—Private construction put in place will probably total about $21 billion in 1952, down slightly from the level for 1951. Next year the figure may be around $20.5 billion—which is still a very good total.

Residential building is expected to decline slightly. Mortgage money should stay relatively tight. But there will be more than enough money for one million housing starts; and a recent survey of consumer buying plans indicates that consumers will probably be willing to buy that many houses. A full year of easier credit terms—with Regulation "X" vastly weakened and perhaps ended entirely—will help the homebuilders, too.

Industrial construction will be off, as more defense stimulated expansion programs are completed. But some of the biggest programs—in chemicals, steel, and aluminum, for example—will continue next year. Industrial work put in place may run in the neighborhood of $1.8 billion, compared to $2.3 billion this year.

An upswing in commercial work will take up some of the slack left by declining industrial building. U. S. needs for new offices, warehouses and department stores are tremendous; and controls have held building to a minimum in the past year.

Commercial building probably won't rise fast—planning and land acquisition have been held up while economic controls prevented construction, and actual contracts will have to wait until projects get out of these early stages. But work put in place should go up at least to $1.2 billion, against about $1 billion in 1952. It could go higher—and probably will in 1954. Utility construction is expected to be about the same as this year—$3.6-$3.8 billion.

• **Public Work Still Rising**—Public construction is running at a rate of about $11.6 billion a year right now; the total for last year was only $9.3 billion. Public work should amount to a little more than $11 billion in 1952 and approach $12 billion in 1953.

Military and public industrial (atomic energy) work account for most of the increase in public work up to now. Together, they were $1.9 billion in 1951, will be about $3.6 billion this year.

But most of the rise in 1953 will come from non-military projects—highways, educational buildings and similar facilities. Both federal, state and local spending on these projects is due to rise.

There's no doubt that the need for public facilities is tremendous. Estimates of total needs for state and local construction alone run as high as $100 billion; and ENR's backlog of public construction is already up over the $39 billion mark.

It is finance—not need—that is the problem. And there are an increasing number of signs that the financing is going to be available. The most recent is the action of Congress in voting on federal aid for highways. Congressional committees tore up all the lower requests for highway money, and granted the highest amount suggested—at a time when appropriations for other governmental projects were being cut. As a result, highway work should hit $2.5 billion this year, may reach $2.7-$3 billion in 1953. And it's likely to stay up in that general range for years.

Spending for other public service construction shows signs of responding to the pressure of need, too. Public housing, construction of sewer and water systems and similar types of work are likely to rise next year.

The Gradall works easily in many a tight spot!

WHEN YOUR CONSTRUCTION WORK must be done in "tight" places such as this, there's one machine you can count on to do the job quickly—the Gradall.

Its "arm-action" boom actually reaches out, twists and turns, to do its work in areas very little larger than the machine itself. And the Gradall's powerful hydraulic "down pressure" and exacting tool control make it easy to dig excavations to blueprint specifications—with clean-cut vertical or sloping sides, precise square corners, and perfectly graded floors. It practically eliminates costly hand labor.

But take your own construction problems to your nearest Gradall Distributor. He'll be glad to show you how this versatile machine can cut costs for you, too.

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GRADALL—THE *Multi-Purpose* EARTH-MOVING AND CONSTRUCTION MACHINE

UP GO CONSTRUCTION COSTS—Most significant fact for construction men in the July 25 settlement of the 54-day steel strike is contained in these figures:

The price rise ($5.20 a ton) granted the steel companies will raise both ENR's construction cost and building cost indexes to all-time highs. Without counting other possible changes in factors affecting the index figures, the steel price rise alone will bring the construction cost index up a full 1.1% (that's 6.5 points on the index) to a record 577. It will bring the building cost index up 1.6% to 421.

LOSSES STAGGERING—The shortage of steel will be around for quite some time. Before the mills get back into full production, losses will be close to 20 million tons. Construction's share of this loss will be four million tons.

Losses of structurals, by the time rolling mills start turning again, will top 800,000 tons. Losses in production of reinforcing bars will approach 500,000 tons. It will probably be the second quarter of next year before steel supplies get back to where they were before the strike.

NO QUICK RECOVERY—About one half of the structural steel fabricating industry that was strikebound—including U. S. Steel's American Bridge division and Bethlehem's Steel Fabricating division—will be back into production within three weeks. Some fabricators, who operated during the strike are now scraping the bottom of their inventories. Those with heavy defense orders should recover almost as fast as those that were strikebound.

But many smaller fabricators will face long delays—because of mill schedules, shipping time, and changes in priorities under the Controlled Materials Plan.

WHAT TO EXPECT ON PRICES—The steel price increase includes: $2.84 a ton under the Capehart Amendment to the Economic Controls Act; $0.70 to cover freight rate increases; and $1.66 to apply to the wage increases. This comes to $5.20 a ton for basic carbon steel—and that is what is most generally used in construction.

Steel fabricators will have to stand the increased cost for basic carbon steel, and most of them will also have to pay the increase in steelworkers' wages—21.4 cents an hour including fringe benefits. This will mean a 12% increase in labor costs.

So the cost of fabricated steel will probably increase about $12 a ton. Such a price increase is permissible under the newly issued Ceiling Price Regulation 156.

NEW CONSTRUCTION PRICE RULES DRAFTED—The Construction Division of the Office of Price Stabilization has drawn up an amendment to CPR 93, regulating construction prices. It is now in the hands of the clearing committee, and probably won't come out for three or more weeks yet.

There's one certainty about it: It won't involve much enforcement. OPS is cutting its staff because its budget was cut; most of the cuts will be in the field staff, especially enforcement. So some policy makers say: "Let's use a disguised kind of voluntary price control, issue the order, require filing, and then hope that contractors will observe it."

Right now this thinking seems to prevail. Some others in OPS reason: Why issue an order that can't be enforced? If they win out, the order may not be issued at all.

Inside sources say the amendment, as now proposed, pretty largely concerns itself with the problem of "flat" or "unit" pricing, and will give them a more realistic pricing formula.

DURAPLASTIC Aids Proper Concrete Placement in World's Biggest Bus Terminal

● To get a more uniform, more workable mix for New York City's new $24,000,000 bus terminal, Turner Construction Company used Duraplastic* air-entraining portland cement—31,000 barrels in all. Duraplastic requires less mixing water for a given slump. It gives a more plastic mix. Such mixes aid proper placement... result in an improved surface appearance.

The greater plasticity of Duraplastic concrete is due to billions of tiny air bubbles entrained in the mix. They minimize water gain and segregation. As a result, finished concrete made with Duraplastic is also fortified against the effects of freezing-thawing weather.

General Contractor: Turner Construction Co., New York, N. Y. Ready-mixed concrete supplied by Metropolitan Sand & Gravel Co. New York, N. Y.

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DPA revises steel allotments plan

- **Current allocations to remain unchanged**
- **CMP tickets to remain valid into 1953**

Reopened steel mills will give first preference to military and atomic energy orders.

Non-military users will have their orders filled—within the capacity of the mills to make deliveries—up to the limit of CMP allotments already issued for the third and fourth quarter. There will be no additional allotments for the rest of this year.

This was the outlook as Defense Production Administrator Henry H. Fowler saw it at the beginning of the week. He outlined DPA-NPA policies for distributing steel during the aftermath of the strike. Detailed orders and directives were to follow within a day or two.

For construction people, the most important policy of the controls agencies is to make no change in present steel allotments for the second, third and fourth quarters of 1952. For all non-military programs, advance fourth-quarter allotments average 80% of third quarter. Those allotments stand.

Further, NPA is extending the periods within which third-quarter and fourth-quarter CMP steel tickets will remain valid. Third-quarter orders will be honored for steel deliveries up to the end of November and fourth-quarter tickets for deliveries through February 1953.

Advance first-quarter 1953 allotments already have been made to non-military programs averaging 60% of the current quarter. NPA aims to balance steel supply and demand—in terms of allotment authority—by the end of the first quarter of next year.

That objective makes it doubtful whether non-military users will get any additional steel—above the 60% allotment during the first three months of '53.

• **Safe estimate**—The official DPA-NPA outlook is admittedly conservative. The steel-producing and steel-using economy may climb back to the level of June 2, when the strike started, more rapidly than the controls chiefs anticipate.

But Fowler and his staff think eight months will be needed to get back into balance, after the loss of 20 million ingot tons (NPA estimate). And that view is based on the assumption that there will be no stoppages in ore delivery or steel production beyond the interruptions normally expected.

During the shake-down period, orders that cannot be filled in one quarter and must be carried over to the next will receive the same priority treatment as at present. But NPA intends to issue no special directives to help non-military projects—not even for defense-supporting industrial plants. To do so would merely clog the works and create confusion which the agency is trying to avoid.

It was primarily to eliminate confusion and resultant decrease in production that DPA and NPA decided not to tamper with outstanding allotments. After long debate, the controls agencies concluded that reprogramming third-quarter allocations and cancelling fourth-quarter allotments would do more harm than good.

Under the policy adopted, all present allotments for the third and fourth quarters remain valid. Steel mills will continue to make deliveries to non-military users in the order in which the CMP tickets are received.

In addition, NPA is establishing a steel set-aside for all producers to cover deliveries on military orders in the fourth quarter. The advance military allotment for that quarter is 100% of the current quarter. The set-aside by all mills is designed to prevent overloading of any producer with military orders and thus to avoid hardship for non-military users who buy from the same mill.

• **Inventories cut**—To help spread the available supply of steel, NPA this week also reduced allowable inventories to a new low level of 30 days. The agency proposes to have inventories built up slowly during the readjustment period. Small users who require minor quantities of steel to continue in operation also are given assistance through revision of NPA rules during the emergency.

Construction programs will suffer as a result of the strike. Fowler cited several examples. Oil refinery and pipeline construction will be set back about three months, he said. Likewise, the scheduled electric power expansion of 9 million kw will not be achieved this year, and the 12 million kw goal for 1953 will be affected.

Similarly, aluminum production that was due to come in during September will be delayed until November or later, Fowler stated. The steel strike has meant a loss of one million pounds of primary aluminum for each day that construction of the new plants has been held up.

• **Bright Spot**—Meanwhile, other NPA spokesmen were more optimistic about two other critical materials. They said all categories of restrictions on copper and aluminum are due to be relaxed.

Basic reason for this outlook is the improved supply picture for both metals. Copper is in a much better position now that imports have picked up. Aluminum is beginning to feel the effects of increased production capacity.

Here are some of the limits on self-certification, due to be issued at an early date:

• **Industrial building**—Copper will be upped from 2,000 lbs to 5,000 lbs per project. Aluminum will go from the present 2,000 lbs to 4,000 lbs per project.

Commercial building—Copper will be raised 750 to 1,000 lbs per project. Aluminum self-certification limit will be doubled from the present 1,000 lbs to 2,000 lbs.

Highways—Copper per project will be hiked up to 500 lbs from the present 200 lbs limit. Aluminum will be released in this category for the first time; allotments going from none to 500 lbs.

Housing and Homebuilding category—Copper for homes will be jacked up to 900 lbs with another 100 lbs for homes using radiant heating. This will give the homebuilders up to 1,000 lbs of copper per unit. In this category, too, aluminum will be permitted for self-certification for the first time to the tune of 275 lbs per unit.

ACCUSER—Rep. Graham A. Barden, chairmanned the subcommittee, which last week accused the AEC, du Pont, and labor unions at Savannah River of wilfully flouting the Labor Management Relations Act of 1947.

STATED REPLY—Robert K. Mason, project manager of the Savannah River project for du Pont, testified there is nothing unlawful in hiring policies at the Savannah River project and read the policies into the record.

Hiring practices scored at Savannah River

A House subcommittee investigating labor hiring practices at the Savannah River project, last week accused officials of the government, labor unions, and the contractor of mistakes, evasions and irresponsibility. The accusations were contained in a report of the Barden special Subcommittee on Education and Labor.

The accusations brought immediate and heated denials.

The subcommittee had been investigating the Atomic Energy Commission project, which is under cost-plus contract to E. I. du Pont de Nemours & Co., Inc., because of complaints made by various members of Congress and "scores of private citizens."

The complaints said that in addition to a preferential hiring system at the AEC project, union membership was a prerequisite for employment in violation of the Labor Management Relations Act of 1947. After a preliminary hearing, the subcommittee held "on-the-spot" hearings Nov. 5 through 9, 1951 (ENR Nov. 15, 1951, p. 24).

The parade of witnesses the subcommittee heard included: four witnesses for AEC headed by Curtis A. Nelson, manager of the Savannah River operations office; for du Pont, policy-making officials headed by Frank H. Mackie, manager of the Commercial and Atomic War Construction division; a group of employees from the employment office on the project; for labor unions, officials of 11 unions which are members of the Building Trades Department of the AFL, and which refer or recommend men to the project.

In its report, the subcommittee makes these accusations:

• In general and about all parties involved in the contract:

Employment policies and practices at the project result in the operation of a preferential hiring system. The report said only 80 to 100 manual workers were "hired at the gate."

The report questions whether coincidence or even a combination of mistakes could bring about a situation where the Labor Management Relations Act of 1947 was violated in principle. Especially when two federal agencies, a reputable private contractor, and 12 unions were involved, says the report.

• The du Pont company:

Du Pont verbally agreed to notify the unions of the employees needed and gave them time to recruit and refer the workers.

Du Pont refused to use State Employment Office services when offered to them. Workers who tried to get jobs through du Pont's employment office or the state office were turned down until they got union clearance.

Du Pont tried to mislead everybody but the unions by a plan to employ a limited number of workers "at the gate."

Du Pont officials during the hearing made studied attempts to confuse the facts, evade direct and pertinent questions, and generally mislead the committee.

• AEC officials:

AEC officials either knew the facts regarding du Pont's practices or were negligent in not finding them out.

AEC officials aided in the attempts to mislead.

AEC officials failed to retain their responsibility at the project and allowed du Pont officials to take over.

• Department of Labor officials:

The department allowed its employment offices to accept orders for recruiting workers which made union membership a prerequisite for employment. This indicated a deliberate violation of Section 101 of Taft-Hartley.

The department delayed an inexcusably long time in adjusting the policy to the federal law once the violation was known or suspected.

• The unions:

Labor-union officials indicated their gratitude to the du Pont company for their cooperation in setting a stage where only members could be employed. They have greatly expanded their membership and treasuries with a minimum of effort on their part.

The union officials made it impossible for a qualified worker in the manual labor field to get a job unless referred by one of the local unions. And some of these unions did not exist prior to the project.

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The government has filed suit on behalf of the Marine Corps sprawling Camp Pendleton against thousands of water users which it claims have usurped water it acquired when it purchased the land for the camp.

ACCUSER—Rep. Graham A. Barden, chairmanned the subcommittee, which last week accused the AEC, du Pont, and labor unions at Savannah River of wilfully flouting the Labor Management Relations Act of 1947.

STATED REPLY—Robert K. Mason, project manager of the Savannah River project for du Pont, testified there is nothing unlawful in hiring policies at the Savannah River project and read the policies into the record.

Hiring practices scored at Savannah River

A House subcommittee investigating labor hiring practices at the Savannah River project, last week accused officials of the government, labor unions, and the contractor of mistakes, evasions and irresponsibility. The accusations were contained in a report of the Barden special Subcommittee on Education and Labor.

The accusations brought immediate and heated denials.

The subcommittee had been investigating the Atomic Energy Commission project, which is under cost-plus contract to E. I. du Pont de Nemours & Co., Inc., because of complaints made by various members of Congress and "scores of private citizens."

The complaints said that in addition to a preferential hiring system at the AEC project, union membership was a prerequisite for employment in violation of the Labor Management Relations Act of 1947. After a preliminary hearing, the subcommittee held "on-the-spot" hearings Nov. 5 through 9, 1951 (ENR Nov. 15, 1951, p. 24).

The parade of witnesses the subcommittee heard included: four witnesses for AEC headed by Curtis A. Nelson, manager of the Savannah River operations office; for du Pont, policy-making officials headed by Frank H. Mackie, manager of the Commercial and Atomic War Construction division; a group of employees from the employment office on the project; for labor unions, officials of 11 unions which are members of the Building Trades Department of the AFL, and which refer or recommend men to the project.

In its report, the subcommittee makes these accusations:

• In general and about all parties involved in the contract:

Employment policies and practices at the project result in the operation of a preferential hiring system. The report said only 80 to 100 manual workers were "hired at the gate."

The report questions whether coincidence or even a combination of mistakes could bring about a situation where the Labor Management Relations Act of 1947 was violated in principle. Especially when two federal agencies, a reputable private contractor, and 12 unions were involved, says the report.

• The du Pont company:

Du Pont verbally agreed to notify the unions of the employees needed and gave them time to recruit and refer the workers.

Du Pont refused to use State Employment Office services when offered to them. Workers who tried to get jobs through du Pont's employment office or the state office were turned down until they got union clearance.

Du Pont tried to mislead everybody but the unions by a plan to employ a limited number of workers "at the gate."

Du Pont officials during the hearing made studied attempts to confuse the facts, evade direct and pertinent questions, and generally mislead the committee.

• AEC officials:

AEC officials either knew the facts regarding du Pont's practices or were negligent in not finding them out.

AEC officials aided in the attempts to mislead.

AEC officials failed to retain their responsibility at the project and allowed du Pont officials to take over.

• Department of Labor officials:

The department allowed its employment offices to accept orders for recruiting workers which made union membership a prerequisite for employment. This indicated a deliberate violation of Section 101 of Taft-Hartley.

The department delayed an inexcusably long time in adjusting the policy to the federal law once the violation was known or suspected.

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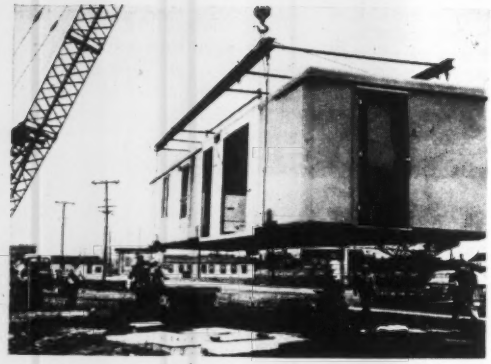
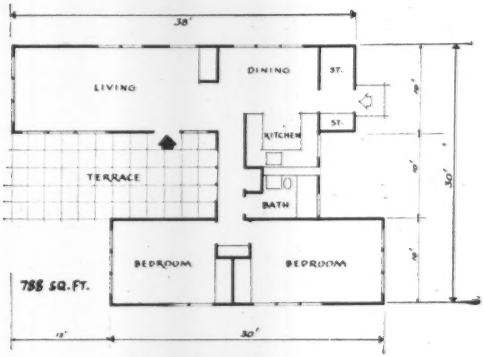




TYPICAL OF THE RELOCATABLE HOUSES TESTED is this model made by Pressed Steel Car Co.

Movable houses pass test

Houses that can be moved from one place to another quickly and inexpensively have crossed the first hurdle toward acceptance by the Housing and Home Finance Agency.

A trial run program testing eight housing systems (ENR April 3, p. 28) has been completed, HHFA Administrator Raymond M. Foley disclosed last week. The results show that relocatable housing can be "competitive in quality, livability, and price with fixed-to-site housing."

A report submitted by Special Adviser Ralph R. Kaul also made three other findings:

(1) Relocatable housing can be economically moved to other areas if the housing need falls off at the first location.

(2) Industry can now produce this type of housing in significant quantities with available facilities.

(3) Relocatable housing is feasible at reasonable rentals even on a self-amortizing basis and even if a significant proportion of the houses have to be relocated at once.

Assisting in preparation of the report were Thomas P. Coogan, housing chief for the Department of Defense, and Carroll Towne of the Atomic Energy Commission. HHFA printed the report for distribution, but cautioned in the preface that it does not endorse the housing systems described.

• **Need cited**—The need for relocatable houses has risen from expansion of military and other defense installations. Certain areas have developed a critical need for good family housing, but there is no assurance for banks that the need will exist there for the 20 or 30 years sufficient to amortize its cost.

Temporary housing has been a poor solution. Costs for maintenance have been high; community development standards have been low. The best solution offered to date appears to be relocatable houses which can be built inexpensively and moved to other areas if necessary.

The average size of the relocatable houses in the trial run was 852 sq ft of floor area. Sizes ranged from 768 sq ft to 1,045 sq ft. The average estimated cost in project quantities of 100 units is $7,747 including 100 mi of transportation but not including land. (See table below.)

The least expensive of the models tested was the unit of Transa-Housing, Inc. costing $6,800. The most expensive was the South Bend Fabricating Co. entry at $8,570. The model with the lowest cost per square ft at the first location was the Mobilehome Corporation Split House at $7.52.

"Allowing $1,000 for land costs, housing of good quality can be obtained for about $10 per sq ft," the report says. This is in line with the cost of housing of equal quality in most sections of the country.

The report also found that the cost of relocating the houses in project quantities averages $766, requiring only 180 man hours per house. The lowest cost for relocating was estimated for the Transa-Housing, Inc., unit at $521. This model also had the lowest cost per sq ft for relocating at $0.63. It required only 120 man hours to relocate.

• **Financing reported practical**—The average house included in the test should rent for less than $75 a month on a $1,000 lot. At $73.37, a project of relocatable houses could be amortized in 20 to 30 years, depending upon the number of units that have

Estimated cost of relocatable housing systems

(In project quantities of 100 units)

Company	First Location			Relocation		
	Floor Area Sq Ft	Dollars Per Unit	Dollars Per Sq Ft	Dollars Per Unit	Dollars Per Sq Ft	Man/ hours
Acorn Houses, Inc.	804	$7,950	$ 9.89	$629	$0.78	159
Gresham-Construction Co.	798	8,450	10.59	836	1.08	204
Home Building Corporation	855	8,000	9.36	956	1.12	240
Mobilhome Corporation	1,045	8,250	7.89	678	0.65	154
Mobilhome Corporation Split House	931	7,000	7.52	758	0.81	169
Nicoll Lumber Co.	858	7,000	8.16	864	1.01	197
Pressed Steel Car Co.	788	7,700	9.77	624	0.79	122
South Bend Fabricating Co.	768	8,570	11.16	997	1.30	247
Transa-Housing, Inc.	821	6,800	8.28	521	0.63	120
Averages	852	$7,747	$ 9.18	$766	$0.91	180

to be relocated and the interest rate.

Taking a hypothetical example, a project could be owned by the government for a 10-year emergency period, then all units relocated and sold to private owners at a price which could be amortized in 16½ years. In other words, it could meet defense needs in temporary areas and still pay for itself in 26½ years, including the cost of relocation, Mr. Kaul said.

If a permanent market develops at the original site for part or all of the housing, the amortization period would be considerably shortened. Details of the calculation and other examples are available in the full report obtainable from the Superintendent of Documents, Washington, D. C. for the price of 25 cents.

Some of the houses in the trial run meet FHA standards and are currently under the FHA mortgage insurance program. Some have been reinforced to withstand the racking and jolting in transit and actually exceed the structural requirements for conventional housing.

Each type observed had different advantages, the report points out. Some are more portable but smaller; some are less conventional but more durable; some cost more but have better quality construction.

"Even with the wide variety of defense housing requirements, it now seems possible to meet the particular requirements in each area with a system or systems which excel in those qualities most required for a solution," Mr. Kaul says.

While the trial run has been primarily concerned with single-family housing for use in areas where the duration of need is unknown, the results, suggests that some of the systems could be used for demountable dormitories and multifamily housing.

Defense construction continues push in Alaska

The present state of Alaska defense construction affairs was brought into focus at a recent interview in Anchorage with the newly installed District Engineer Col. Louis H. Foote of the Corps of Engineers.

The six-year old multi-project construction program in America's northern frontier has had congressional authorization to last May, of $586 million. According to the new Alaska district engineer, the undertaking can be said to have now reached maximum momentum.

"We are proceeding along scheduled lines," he said, "in spite of an implied delay resultant from a procession of strikes. Congressional action this summer has opened a flood of new construction projects in Alaska involving expenditures of additional millions. The value of construction scheduled for calendar 1952 is $150 million. Indications are that expenditures in 1953 may exceed those of 1952."

Queried on how much of a work stoppage problem the Alaskan winter poses and also on the extent of interest contractors show in construction in the territory, Colonel Foote said that much progress is made during winter months despite severe temperature drops. He pointed to the past winter season's experience to illustrate the point.

"With the advent of January cold," he said, "Alaskan defense construction shifts abruptly to a three months shut-off of outdoor operations and into indoor finishing work. Progress during the past winter was more than token. Previous experiences served to time an unusual number of projects for buttoning up."

During the 1952 winter, Alaska district administrative and technical staffs were kept occupied by the processing of 149 current and proposed construction contracts. These contracts had an approximated value of $360 million.

COL. LOUIS H. FOOTE, recently installed Alaska District Engineer.

• **Attracts contractors**—Col. Foote brought out the facts that contractor interest in the Alaska defense schedule construction was extremely active during the winter and spring of 1952; that a total of fifty-seven "stateside" and Alaskan contractors had placed bids on two of the smaller contracts; and that across-the-board bid interest during the January-April period showed 10.3 bids placed at each opening over 5.0 for the same period the previous year. The increase was attributed to the lesser number of offerings, earned know how, and publicity.

Three hundred and thirty-five bids were received at 55 openings between April, 1951 and April, 1952. The 1952 spring business at hand consisted of recently completed works, 35 active construction contracts, service contracts, and proposals for 73 new projects. Spring in April, though marked by strikes, reopened large-scale outdoor construction throughout the territory.

It was noted that ground and weather conditions did not materially affect many operations during the worst of the winter. Experience, planning, and authority had combined to close-in 40% of the structures to allow for interior work. An early resumption of outdoor construction was possible in the spring because many of the 74 projects started the previous year had made sufficient progress to be buttoned up by January. It was particularly noted that the designing and advertising of authorized works progressed consistently with the management of a multi-project program, the interest of the federal government in economy, and the progress of labor-management negotiations.

• **More bids**—"Much of the work at Ladd Air Force Base had been held up this year pending funds for a power plant extension which will service many new installations. We will open bids for the power project in August, and this action permits offering bid invitations for contracts on many sizeable jobs in the Fairbanks area," Col. Foote disclosed during the interview.

In addition, the Colonel said that another important immediate action involves a large-scale housing construction project in the Anchorage area for Elmendorf Air Force Base. This project calls for construction of 344 units of standard 8-family housing and will consist of 43 buildings. An alternate bid for 320 additional units will be invited.

Col. Foote has had three previous years' experience with construction in Alaska and the Aleutians during World War II. Born in Tishomingo, Oklahoma, he has served in the U. S. Army, Corps of Engineers, since 1927 in such places as Hawaii, Washington, New Mexico, Ohio, Tennessee, and the Asiatic-Pacific theater. He replaces Colonel L. E. Seeman, as Alaska District Engineer.

FLIMSY BUILDINGS IN TEHACHAPI business section collapsed, a well-designed building stood up, so . . .

Tehachapi quake left no new lessons

The severe earthquake that rocked southern California, July 21, produced no results that can be considered as adding to knowledge of quake-resistant construction. That is the conclusion of Prof. George W. Housner of California Institute of Technology who visited the area on July 22 at the request of ENGINEERING NEWS-RECORD.

With the epicenter of the shock located about 45 miles southeast of Bakersfield in the Tehachapi Mountains, the only accumulation of buildings nearby was in the small village of Tehachapi (population 2,000) about 15 miles away. According to Prof. Housner the intensity of ground motion there was about the same or perhaps less than at Long Beach in the March 10, 1933 quake. The shock is rated at a magnitude of 7.5 as compared to 7.1 for the Seattle shock of April, 1949.

Small commercial buildings of shoddy construction were badly damaged, and a steel water-tank with only light bracing collapsed. A two-story reinforced concrete building suffered only minor damage. The Women's State Prison, 10 miles west of Tehachapi suffered only moderate damage, even though it had not been designed to resist lateral forces. It, too, was of reinforced concrete but had wood roof framing and a tile roof.

Additional damage continued to be caused by after-shocks for several days after the initial quake. For the most part, it was confined to buildings already weakened by cracks and in a state of partial collapse.

Of the three schools in the Tehachapi area, the Cummings Valley School built in 1933, collapsed whereas the newer Elementary School and High School, designed to take account of seismic forces, suffered only minor plaster cracks.

Most of the force of the shock was spent in a sparsely settled region of mountains and desert. Nevertheless there were effects of the main quake as far away as Los Angeles (65 miles) where windows were broken and plaster cracked. Two steel water-tanks in Bakersfield, not designed for earthquake forces, collapsed, and in Santa Barbara, 70 miles away, Prof. Housner examined a number of damaged buildings, all old and not seismically designed. The six-story building housing the Santa Barbara radio station suffered serious cracking in the first and third-story walls. The five-story Carillo Hotel was similarly affected by cracks in the first story.

"As usual," concluded Prof. Housner, "the earthquake showed that poorly designed buildings or shoddily constructed buildings invariably suffer damage. Ground motion was not sufficiently strong in any city to test the strength of buildings which had been designed to resist earthquake forces. The quake showed that buildings of poor design and construction are very susceptible to damage from shock loadings, which is pertinent when considering the effect of atomic bombs."

River proves key to power case

Who owns the Deschutes River?

That is a question the courts will have to decide, now that the Oregon State Hydroelectric Commission has rejected an application of Portland General Electric Co. for a state permit to construct Pelton dam in the Deschutes, a project for which the Federal Power Commission had previously issued a permit.

The state bases its claim to jurisdiction on a state law which provides that no dams shall be built on Oregon streams without approval of the state fish commission and the state hydroelectric commission. Since the Deschutes is entirely within the state boundaries, Oregon contends that the proposed dam is clearly within the provisions of the Oregon statute.

Jurisdiction is claimed by the FPC on the ground that the proposed damsite rests on federal land.

At stake in the issue is construction of Pelton and Round Butte Dams, projects of Portland General Electric. Only Pelton was involved in the application for a state permit, but plans of the company include the Round Butte project, upstream from Pelton. The two projects would cost about $70 million and would generate 345,000 kw. FPC has granted a preliminary permit on the Round Butte project.

PGE has taken the attitude that FPC's approval is all that is needed to proceed with the project, but because of possible delays through court proceedings after construction had been started, it is holding up further action pending decision on an appeal from FPC's ruling filed by the Oregon attorney general in the U. S. circuit court of appeals.

At the heart of this controversy is the battle between fish and power in the Pacific Northwest. The state fish and game commission and a number of sports organizations are the principal opponents.

Ban ends on reclamation starts

Invitations for bids on two new reclamation projects of the Bureau of Reclamation last week marked the end of President Truman's ban on new irrigation starts.

Projects announced last week are:

Tiber Dam, on the Marias River, in North Dakota, for which $2½ million was appropriated to initiate work this year, and drilling of five new wells for the north side pumping unit of the Minidoka Project in southern Idaho, for which $150,000 was appropriated to begin work.

Bids on the earth-fill, multi-purpose Tiber Dam will be opened at Great Falls, Montana, on Aug. 12. For the Minidoka project, bids will be opened Aug. 14 at Burley, Idaho.

• **More to come**—Bid invitations on eight additional irrigation projects will go out as quickly as the Bureau of Reclamation meets conditions laid down in the appropriations bill.

Sly Park Unit, Central Valley Project, California, $1.2 million; bids to be invited on construction camp Sept. 15.

Solano Project, California, $3 million; bids to be invited on construction camp Oct. 15, but award of contract will await Congressional hearings.

Savage Rapids Dam, Oregon, $700,000; bids to be invited on dam Oct. 1.

Weber Basin Project, Utah, $1.3 million; bids to be invited on Gateway Tunnel Sept. 15.

Kennewick Division, Yakima Project, Washington, $1.5 million, bids to be invited on Chandler Canal between Prosser and Chandler Power plants Sept. 3.

Rapid Valley Unit, Missouri River Basin Project, Wyoming-North Dakota, $1 million; bids to be invited on Partola Dam Sept. 2.

Missouri Diversion Unit, Missouri River Basin Project, Montana-North Dakota, $2 million; bids to be invited on stripping dike area Aug. 8.

Webster Unit, Kansas, $1.5 million; bids to be invited on Webster Dam foundation Oct. 1.

Chemical plant expansions get tax aid

Last week, the Defense Production Administration got specific about what synthetic fiber expansion it will and won't aid.

It carried out its plan to approve fast tax write-off certificates totaling $65.8 million for 100 million pounds of nylon capacity. To do this, it gave three certificates to du Pont and one to Allied Chemical and Dye.

Allied's certificate covered $23.2 million of the value of a plant (no location given) capable of producing 20 million pounds of nylon per year. Another producer, Chemstrand Corp., with DPA aid has a 50 million pounds per year plant at Pensacola, Fla., now under construction, as well as a 30-million pound acrilian plant.

Du Pont's certificates, which total $42.6 million, will add 80 million pounds capacity to facilities at Chattanooga, Tenn., Seaford, Del., and Martinsville, Va.

• **Rejections listed**—Unusual aspect of DPA's rejections were that it made public the names of projects which it turned down.

Included out are du Pont's $36.1-million orlon facilities at Camden, S. C. (and Waynesboro, Va.) and its $51.7-million dacron capacity at Kingston, N. C. (and Gibbstown, N. J., and Seaford, Del.). The plants are now underway.

Union Carbide and Chemical Corp. was turned down for tax relief covering its Charleston, W. Va., $1.3-million dynel pilot plant and its projected $30-million Draper, N. C. plant.

Other turndowns, which may be built without any government tax aid:

American Cyanamid, which has applied for tax aid on a $40.6-million plant which will be located in the southeast.

Tennessee Eastman, which had asked for an $18-million fast tax write-off at Kingsport, Tenn.

Engineer faces charges

An engineer, who took $24,000 from seven Michigan municipalities for sewage disposal plants he never completed, faces revocation of his State engineering license.

The board of directors of the Michigan Society of Professional Engineers adopted a resolution demanding removal of Herbert C. Buckholtz from the registration list.

Buckholtz, the resolution stated, took funds from St. Louis (Mich.), East Jordan, Boyne City, Nashville, Houghton Lake, Beulah and Elk Rapids.

The resolution pointed out Buckholtz "consistently refused to complete his work . . . or account for his actions to the State Board of Registration for Architects, Professional Engineers and Land Surveyors."

The board is studying the resolution.

NEWS BRIEFS

• **The Dalles bridge settled**—Rather than engage in long and expensive litigation, Wasco County, Oregon, will accept the federal government's offer of $1,994,600 for loss of The Dalles bridge-property which the county was building when the Corps of Engineers took over the site to start construction of The Dalles Dam in the Columbia River (ENR June 8, p. 26). While county officials consider the offer too low, it was regarded as preferable to long delay in construction of a bridge at a new site downstream from the location of the dam project.

• **Barge Canal tied up**—Discovery of a leak under the movable dam at Lock No 9 on the New York State Barge Canal has resulted in closing of the canal east of Lock 10 at Cranesville. Repair work is expected to be completed this week.

The canal at that point is in the Mohawk River, where movable dams are used to convert the river into a series of pools. To make the necessary repairs, it has been necessary to empty the six-mile long pool between Locks 9 and 10.

The dam at Lock 9 is 530 ft long, made of three groups of five gates each. The leak was discovered, July 12, under the sill and apron of the most northerly of the south group of five gates. When discovered, seepage had caused the upstream apron to break and cave in. As a result, the flow of water under the dam developed into a stream that threatened further damage to the underpinning of the south group of gates. When the pool-level had been lowered, sheetpiles were driven along the upstream edge of the apron between the south abutment and the south pier. This will divert the flow of the river from the southerly group of gates, permitting the pool to be refilled.

Permanent repairs will not be undertaken until fall, when the canal is closed for the winter months.

• **Cyanide accident**—A 3,000 to 4,000-gal slug of zinc cyanide plating-solution was spilled through error into the Wabash River near La Fayette, Ind. The resulting fish kill extended 50 miles downstream. State health engineers set up a monitoring station above Terre Haute, first water supply downstream—75 mi below the spill. No harmful cyanide reached that point. The State Pollution Control Board will take action against the spiller, Peerless Wire Goods Co.

PENSION ACCORD—Andrew J. Lawler, executive committee secretary for brick unions; I. Roy Psaty, contractor; and Fred J. Driscoll (far right), employer association leader, look on as Albert Cerusi, union executive committee chairman, signs new agreement providing pensions for New York bricklayers.

Start pension pay to N.Y. bricklayers

Within two weeks, 294 veteran bricklayers will receive simple envelopes marked with the return address "Bricklayers' Pension Fund, 178 East 85th Street, New York City"—and with the receipt of those envelopes will start the first pension plan for this building trade in the United States.

No ceremonies will mark the occasion—just the checks moving prosaically through the mails. But the occasion represents the culmination of nearly two years of careful, painstaking work by employers and union men—and it could well set a pattern for other trades and other localities.

• **Plan and payment**—The first 294 checks will go to oldsters—men who have passed the age of 65 and who have in fact earned no credit under the pension plan, but who are recognized by union men and employers as having contributed much to the industry.

Here is the plan in thumb-nail:

1. Payments to the fund are entirely employer-contributed, at the rate of 20 cents an hour for each hour a bricklayer works.

2. Three benefits are provided:

A. A standard benefit, based on years or parts of years credited to the bricklayer after Jan. 1, 1951. One year is figured at the rate of 1,008 hours' work—which is roughly 12 working days of 7 hours each per month.

For each such year (at age 65) the bricklayer gets a pension at the rate of $2.50 per month per year (if he has worked 20 years, for instance, he could receive $50 a month as pension). Part-years worked (based on the 1,008 hour limit) are credited down to quarters, and paid at the proportional rate.

B. Death benefits (although bricklayers are already covered through a separate welfare fund) of $100 a year for each year of service, up to $1,000. (Death before retirement.)

C. Adjusted benefits, particularly aimed at older men who are either at the retirement age or so close to it that they would not have the opportunity to earn more than a few dollars per month as pensions. These start at $20 at age 65, and scale down to nothing at 45. If a man wants to continue working after 65, he may add to his pension benefits.

3. More than 1,150 employers—members of the two major employer groups, the Building Contractors and Mason Builders Association and the Associated Brick Mason Contractors, and Independent Contractors—are parties to the agreement. The seven local bricklayer unions, with a combined membership approximating 8,000 men, form the other side.

• **Not easy, not quick**—The fact that it took almost exactly two years to work out the details—and the fact that the fund starts now with the not inconsiderable bank balance of $1,625,937—demonstrates that such a pension plan is no easy job to work out.

It started in April, 1950, when the Building Contractors and Mason Builders sat down with the unions (The Bricklayers, Masons and Plasterers International Union, Locals 1, 9, 21, 30, 34, 37, 41) to talk contracts.

Fred J. Driscoll—then president of BCMB and now president of New York's top-level Building Trades Employers' Association—put into words a problem facing both unions and employers:

The brick trades were getting pension-conscious; more importantly, the average age of bricklayers was going up (it was then over 50 years) despite an influx of apprentices.

What had to be done was to make the trade attractive as a career for the younger men, and make it possible and attractive for older men to stop work.

The answer had to be pensions.

• **Good idea**—What was proposed was something to which there could have been strong objections—a pension fund paid entirely by employers.

But the employers and the bricklayer executive committee agreed it was a good idea, and worked on it.

So they wrote into their 1950 agreement that they favored such a plan, and that, starting Jan. 1, 1951, employers would start paying 10 cents an hour a month (later raised to 20 cents) into a pension fund; appointed a joint committee to study the problem, and set to work.

• **But tough sledding**—The joint committee found they had only made a small beginning. Like ripples in a still pond, the problems kept coming in seemingly endless lines that are at once a demonstration of the complexity of the construction industry and a lesson in economics.

For instance: the labor unions list about 8,000 card-carrying bricklayers in an area that covers New York City, and Nassau and parts of Suffolk Counties on Long Island. Of the 8,000, possibly 6,000 are active.

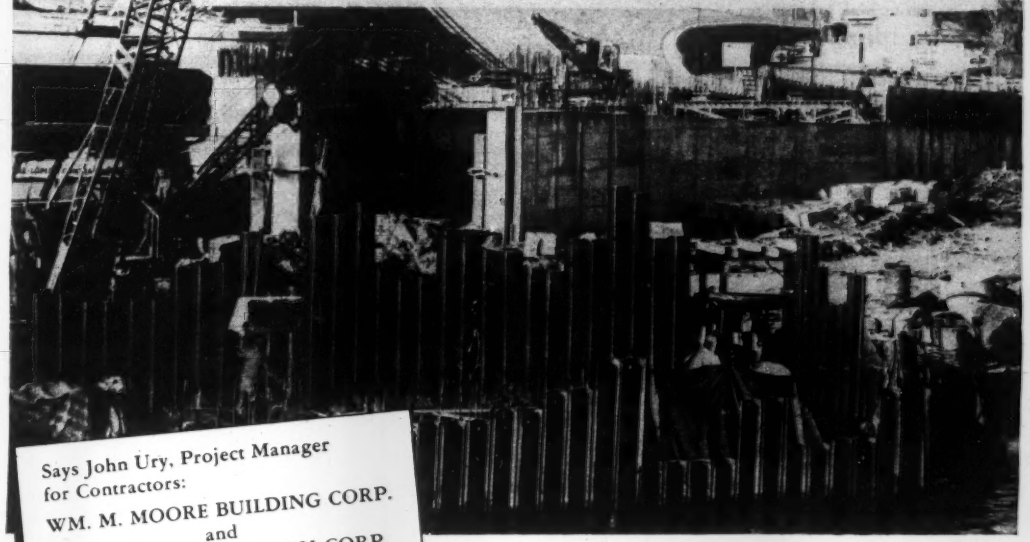
Now, how do you keep track of 6,000 men, who work today and not tomorrow because of weather; who work for one employer today, another next week, a third a month from now?

What can you say about "normal" working time for a trade so dependent on the weather and other trades? Well, you can figure that if all things were perfect, and allowing for holidays, the bricklayers could work seven hours a day for 21 days per month—1,764 hours a year. But you'll have to cut that a lot—all things normally not being perfect. So you come up with the acceptable figures of 1,008 hours, about 12 days per month.

(Continued on page 31)

"The BIG SAVING was FOSTER RENTAL PILING"

On complicated 3-sided cofferdam for the $5 million East Bronx Unionport Bridge Construction.



Says John Ury, Project Manager for Contractors:

WM. M. MOORE BUILDING CORP.
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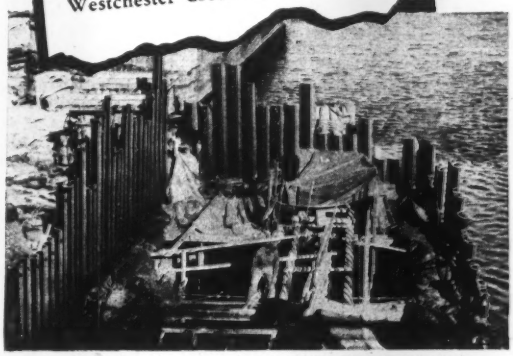
Construction started in 1949, and skillful driving of 30 to 45 ft. Interlocking Steel Sheet Piling by these 2 contractors made this an economical, successful job. Unionport Bridge crosses Westchester Creek in East Bronx.



Rental Piling had to be driven considerably below the bed of the creek, with extra reinforcing to protect against swells.

An interesting installation of piers had to be constructed atop 35-year old existing caissons. Here was a tough water seepage problem in a complicated 3-sided cofferdam — approximately 1,000 gpm had to be pumped out of the cofferdam by two 6-inch pumps. Steel Sheet piling was needed — on time — in the exact section and lengths (30 to 45 feet). And Foster had it — just what the job required. A phoned order — a prompt delivery, a dependable quality — and a low cost, requiring no huge purchase investment on the part of the contractor, made FOSTER RENTAL PILING the 100% answer for this job.

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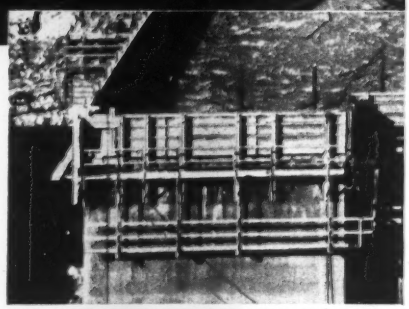

FORMS ON EACH LIFT ARE HELD SECURELY by Superior 4-Strut Coil Loops embedded in a lean concrete mix.

Joint venture contractors, known as the *Chief Joseph Builders,* include: *L. E. Dixon Co., Arundel Corp., Hunkin-Conkey Construction Co., and American Pipe and Construction Company.*

Located on the Columbia River near Bridgeport, Washington, the dam, sponsored by Corps of Engineers—U.S. Army, is scheduled for completion on August 1, 1955.

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2100 Williams St., San Leandro, Calif.

Bricklayer's Pension • •

(Continued from page 28)

1952 to work it out—and it took hundreds of hours of time.

The record-keeping was solved simply enough: The bank which is depository for the pension funds (National City Bank of New York) keeps what amounts to individual "bankbooks" on each man. Employers send in checks weekly to the bank to cover their employees; the bank makes necessary entries, and periodic reports to fund officers.

An eight-man board of trustees administers the fund. It is composed of four union, four employer members, with its chairmanship rotating between them. Present chairman is Albert Cerusi, union executive committee chairman. Vice-chairman is Driscoll. Other board members include I. Roy Psaty, John J. Mulligan and Frank Lasala of the Associated Brick Mason Contractors; Andrew J. Lawler, Sam Bellizzi and Louis Lombardi, representing the unions.

The investment policy agreed upon is this (and the fund began its first purchases this week): 25% in government bonds; 50% in corporate bonds; 15% in preferred stock; 10% in common stock. Trustees figure that these will produce a 3.37% yearly yield.

Electricians lead in wage increases

Of all union construction trades workers, electricians fared best in wage increases for the three-month period that ended the first of this month. They racked up an average increase of 8.2 cents an hour, according to the Dept of Labor's Bureau of Labor Statistics.

Right behind the electricians came carpenters, painters and plumbers with average advances of 6.6, 6.7 and 7.0 cents an hour, respectively.

The BLS surveyed seven major building trades in 85 cities during the quarter. An advance of 2.6% for all trades was recorded. This advance was compared to the 0.6% of the previous quarter. In the same period of '51, wages rose 2%.

Here are the 85 city averages for the major trades:

Bricklayers	$3.13
Carpenters	2.63
Electricians	2.88
Painters	2.57
Plasters	3.08
Plumbers	2.84
Building laborers	1.74

SAFETY COMMITTEE MEETING IN CHICAGO—Left to right: B. O. Yeldell, labor relations manager, Ford, Bacon & Davis; Mary R. Nalley, acting secretary to the committee, NCA; W. H. Kelly, Jr., assistant to general construction superintendent, Lummus Co., (committee chairman); George Winkler, Procon, Inc.; C. A. Clore, supv. engineer (construction), The Girdler Corp.; H. B. Wallace, safety engineer, Construction and Engineering division, Koppers Co.; W. R. Benn, safety engineer, H. K. Ferguson Co. (Photo by Mike Shea.)

Safety manual published by NCA

A safety manual, which was the joint effort of members of the National Constructors Association, has been published simultaneously with the launching of a construction accident-reduction program.

The manual was distributed at a meeting of the Safety Committee in Chicago, July 17, chairmanned by W. H. Kelly, Jr., of the Lummus Co.

The committee inaugurated the accident-reduction program to align the 20 member companies (constructors of oil, chemical, and steel plants) behind the motto of the safety manual: "To achieve the highest standards of safety in field construction work."

To help the safety campaign, the committee set up an award for members who reduce their accident frequency and severity rates. The award —a Certificate of Achievement—will be given to member companies who reduce their rates 20% below last year. The year-to-date figures of September 30, 1952 versus the year-to-date figures of September 30, 1951 is the period of comparison for the first award.

The manual is intended for distribution to all personnel concerned with safety and all top executives of the member companies.

The committee recommended that member companies having their own safety book or booklet, distribute it to the other members. And it also suggested that local NCA committees of two or more member companies working in the same general area include in their discussions, accident prevention methods.

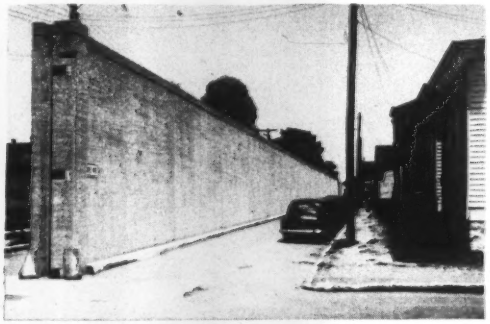
Labor briefs . . .

• **Wilmington metalworkers back**—A two-month strike of sheet metal workers at Wilmington, Del., has ended with acceptance of a 15-cent an hour pay raise, plus 7½ cents an hour for welfare fund payments.

• **End California strikes**—A two-month strike that tied up more than $250 million in contracts in 12 southern California counties ended with new pay rates for two building trades unions. Operating engineers got raises ranging from 14 to 19 cents; ironworkers a flat 23 cents.

• **Drop Louisville strike**—Completion of the work by the Louisville Gas & Electric Co. ended a strike that had tied up the $300-million General Electric Appliance Center at Louisville, Ky. Trouble started in mid-July, when electrical union members walked out, claiming they should install power lines, poles and other work being done by LG&E with its own forces. LG&E obtained a court injunction.

SNORTING TRACTOR dresses the riverward slope of an eight-mile levee in Paddy's Run section of the flood-protection works in the southwest part of Louisville.



COMPLETED FLOODWALL looking east from Quincy and Adams Streets is in the often inundated "Point" section. Economy dictated building wall in the street.

The Ohio River gets a strait-jacket

U. S. Army Engineers made a progress report last week showing that the major part of a $36-million Ohio River flood-control project to protect Louisville, Ky., and three Indiana towns is rapidly nearing completion.

Work on the mammoth job started five years ago. One phase—giving flood protection to Jeffersonville and Clarksville, Ind.—was completed in October, 1949, at a cost of $4.2 million (ENR Dec. 19, 1946, p. 10).

The second phase—at Louisville—is nearing an end. The floodwalls and levees are virtually complete. Only about 100,000 cu yd of levee southwest of the city at Paddy's Run remain to be added to the 17.3-mi flood barrier.

The barrier will contain 56,800 cu yd of concrete, 5,321,000 lb of steel, and 2,722,000 cu yd of earth.

Lt. Col. Charles Bidgood, U. S. Army District Engineer, said the project will give protection to all of Louisville proper, which sustained about $52 million damage in the disastrous flood of 1937.

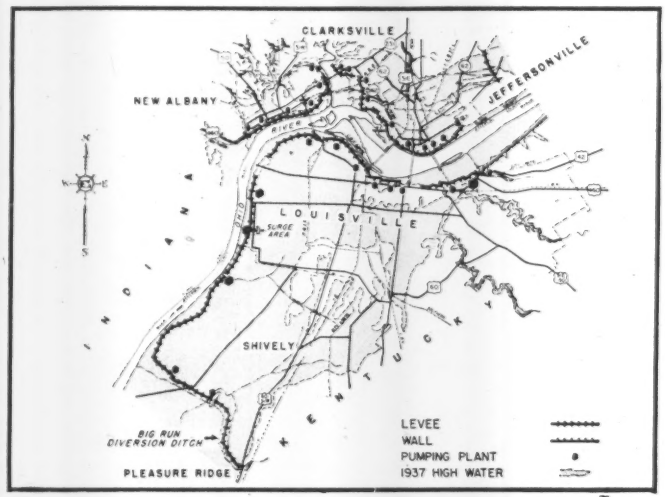
The new project contains both earth levees and steel and concrete flood walls.

Typical design of the levees gives a crown width of 12 ft and 1 on 3 side slopes. Where the height of the levee exceeds 25 ft or where foundation slopes were inadequate, the engineers flattened the levee slopes to provide a stable structure. The embankment material was placed in approximately 8-in. layers with the more pervious material on the landside, and compacted at optimum moisture content by not less than six passes of sheepsfoot rollers. Where the impervious blanket was relatively thin, a pervious relief drain was placed at the landside toe to aid in controlling the seepage through the foundation and in draining seepage water to a point of collection. Where the levee was likely to be scoured by river currents the surface was protected by riprap. At points in the project the levee crosses ravines which require embankments 55 to 60 ft in height.

• **Walls described**—The engineers used concrete flood walls wherever the cost of rights-of-way in built-up areas was excessive.

The type wall most generally used was the reinforced concrete inverted "T" wall with a base width approximately equal to its height. For walls up to 20 ft, a flat base was used, and sloping bases were used on higher walls.

The bases were buried three or more feet underground and were provided a cut-off key at the riverside edge to prevent slipping and to increase the seepage path. Stability of this cantilever-type wall was assured by the wide base and riverside cut-off key.



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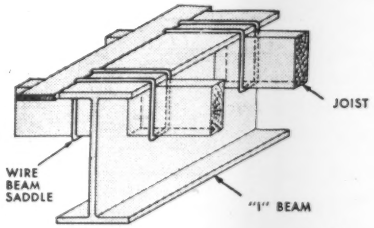

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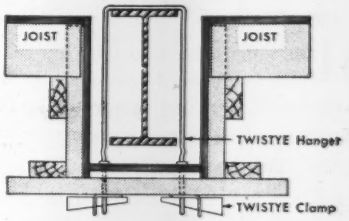
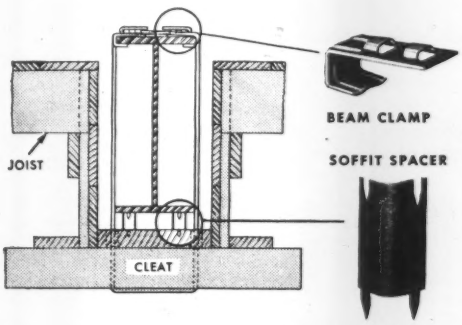


2 **TWISTYE Hangers**—For fireproofed construction . . . accurately fabricated to provide a positive spreader . . . guaranteed breakback . . . easy installation, quick removal.

3 **Beam Clamps with Band Iron and Soffit Spacers**—For fireproofed construction . . . Beam Clamp has a double grip on Band Iron which develops the band's full strength. Soffit Spacers act as spreaders. Installed from above . . . no scaffolding necessary.



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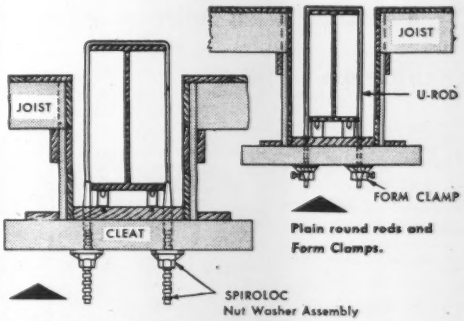
4 **"U" Bolts**—For fireproofed construction. Recommended where hangers must carry heavy loads.



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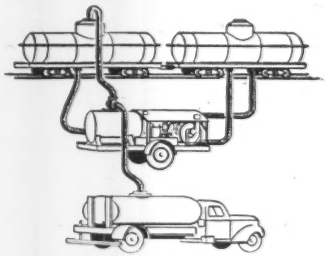

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SPECIFICATIONS

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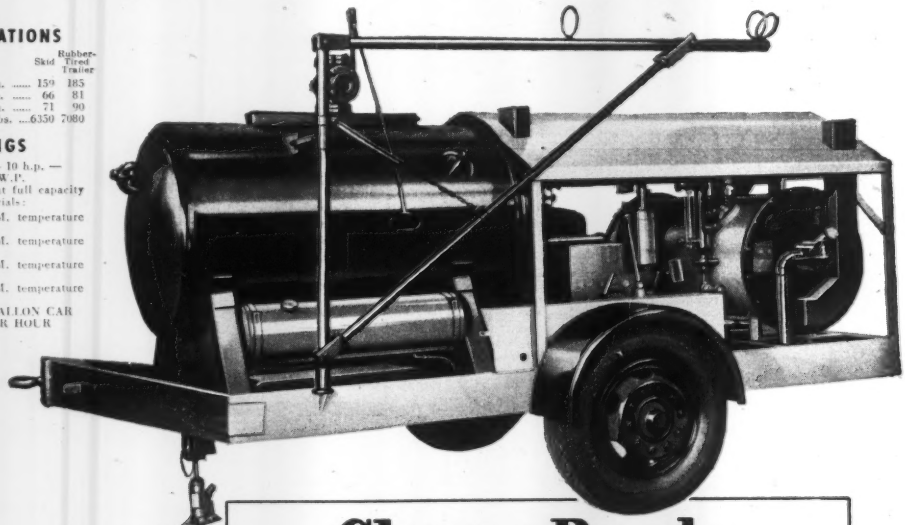

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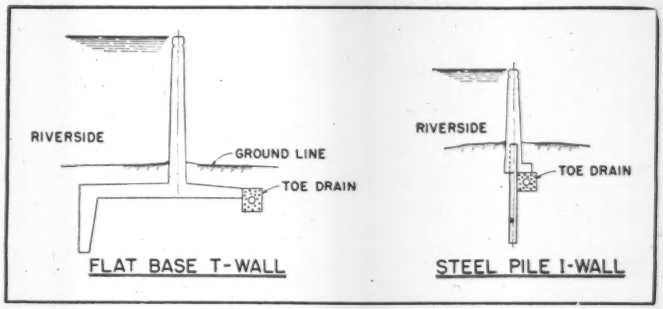


THE TYPE OF WALL most generally used was the reinforced concrete inverted "T" wall. For lower protection heights, the "I" wall was used.

Design criteria for this wall were:

1. A water load to the top of the structure was used for determining stability from overturning.

2. A factor of safety against sliding of not less than 1.5 was required when friction properties of the foundation only were considered.

3. A creep ratio (length of line of percolation to height of dam) of not less than 2.0 was required for the types of foundation materials normally found in the Louisville area.

The wall was proportioned so that the unit stresses under the various design loadings would not exceed 18,000 psi. for reinforcing steel and 1,050 psi. for concrete in compression.

• **Another wall**—A second type of wall was used for lower protection heights—the "I" wall. Current practice, the engineers said, limits the clear height of this type to 10 ft. although it has been used for heights up to 15 ft.

For heights up to 7 ft. above the ground, the wall is constructed entirely of concrete with the portion embedded in the ground equal to approximately 1.35 times its clear height above the ground. For heights of 7 to 10 ft. above ground, the wall consists of steel sheet piling, driven to the depth necessary to provide the required penetration ratio and topped with a reinforced concrete cap which extends 4 ft. below the ground surface. On the steel sheet pile I-wall, a small concrete toe was added on the landside to reduce the deflection under load and to retain the earth adjacent to the wall.

In addition to these walls, the project includes thirteen pumping plants which will pump sewage and rain water during flood periods. They will cost $12 million of the total project allotment and will have capacity enough to pump dry many a small river.

The biggest of the pumping plants—Beargrass Creek Pumping Plant—is the second largest of its type in the world. It will pump 2,970,000 gpm. Work on the Beargrass Plant is expected to start in six or seven months and it is scheduled for completion in 1954.

• **Cooperation**—An interesting feature of this project is the integration of the Engineers' flood control and Louisville's sewage systems. The long-range plan of the Army Engineers and the Louisville Metropolitan Sewer District provides that the pumping plants will be used in the city's proposed sewage-disposal system. Where the two systems parallel, city and federal funds were combined for the job. This step amounted to a considerable saving for both the United States and the city.

The flood pumps, thus, will do two jobs—pump floodwaters and sewage. For example, near the Fourth Street plant, now under construction, a large interceptor sewer runs eastward along Main St. and gathers all the sewage for the pumps to discharge into the river during floods, or to pump toward the sewage treatment plant when it is built.

Already completed are pumping plants at 27th Street, 34th Street, and Shawnee Park. Those at Fifth, 10th and 17th Streets will be completed in October, according to Colonel Bidgood. The plants at Buchanan, Fourth Street, State Fairgrounds, Paddy's Run, Lee's Lane, and Mill Creek will be finished next year.

In addition to the pumps, levees and walls, the works includes 41 street closures, nine railroad closures, one combined street and railroad closure, 10 service closures and 11 sandbag closures. Various types of closures were used including the corrugated sheet type, flat panel type with low and high heads, and the rolling gate type.

Under construction across the river from Louisville is the New Albany flood works which were started in 1948 and will consist of 2.5 miles of earth levee, .2 mile of concrete wall, and six pumping plants. Still to be built in the $6,295,000 project are 6,885 ft. of levee and 210 ft. of concrete wall, plus the pumping plants yet to be constructed.

Five more expressways if Milwaukee gets money

The city of Milwaukee, Wis., hopes to have five expressways underway by the end of 1954 if it can raise $19 million more from federal, state and local sources than it has in sight at present.

The city has already made a start on two expressways; one running east and west from the downtown area and the other north and south just west of 44th St.

The additional ones just discussed with the state highway commission at Madison are a North Avenue expressway across the north part of the city from the 44th Street expressway to about 10th Street, a leg northwest from the north terminus of the 44th Street freeway and a north south expressway to speed traffic in the downtown area.

The overall system on which the stepped-up timetable is being urged would be about 25 mi, about five times as great as the first sections on which work is now under way, Raleigh W. Gamble, expressways director estimates.

Gamble and Mayor Frank Zeidler of Milwaukee led a nine-man city delegation to the session with the highway commission. They said the total amount needed for the work through 1954 is $31,974,400. Of that amount only $12,931,250 has been used or is available.

The city hopes that major segments of the 44th Street expressway and of the east-west route from the downtown area will be in operation by the end of 1954, that preliminary plans will be completed for the three other routes and that some high cost land for one of the three will be acquired in the downtown area.

The city's delegation asked the commission how much state and federal money could be made available to the city for expressways through 1954. The commission said it would examine its anticipated revenues and give the city an answer within 30 to 60 days.

BOXES LAY END TO END in natural drydock near Haverstraw, N. Y., just before basin was reflooded to float them.

Pier 57's floating boxes ready for trip

LAST WEEK Pier 57's three buoyant box foundations were floated, in their drydock, 38 miles up the Hudson River from New York City. One of the boxes was towed to final position at 15th St. and the North River in Manhattan this week and will be set upon its foundation next week.

Design of the pier (ENR Jan 11, 1951, p. 46) calls for three submerged, watertight, concrete boxes whose buoyancy will support about 90% of the total dead load. Underlying silt and piles from the old pier will carry the other 10% plus live loads.

Two of the pontoon-type substructures (No. 2 and 3), each 360 x 82 x 32½ ft and weighing 27,000 tons, will lay end to end out to the pierhead line. The third box, 367 x 87 x 28 ft and weighing 19,000 tons, will be set along the bulkhead line, forming a T with the other two.

This unusual design necessitated unusual construction methods above and beyond utilizing a natural drydock 38 miles from the site. Some 34,000 cu yd of concrete required careful batching, casting and curing to make the massive boxes watertight. Reinforcing steel was welded into assemblies weighing up to 27 tons and placed ahead of the wood forms. Special notched templets and jigs and an automatic welding machine facilitated extremely rapid fabrication of these units.

• **Natural Drydock**—The contractors, Merritt-Chapman & Scott Corp. and Corbetta Construction Co., sought a site where work could be done in the dry, yet which could be flooded so the boxes could be floated and towed to the main channel with minimum hazard. An abandoned clay pit off the west bank of the Hudson River between West Haverstraw and Stony Point, N. Y., was selected. Over the years, seepage of water had formed a pond 2,100 ft long parallel to the Hudson and 650 ft wide, separated from the main channel by a 75-ft wide strip of land.

Dewatering started as four 10-in pumps, with a combined capacity of 12,000 gpm, were floated out to the deepest part of the pond on two pontoon-supported rafts. Barrel floats carried the four 250-ft lengths of 10-in discharge pipe, which terminated in a sluiceway leading into the river.

Only 20 days were required for emptying the pond of its 350 mg of water.

Shovels and draglines then removed about 150,000 cu yd of mud, clay and silt from a strip 1,500 ft long and 250 ft wide. About 1,000 cu yd of red sandstone was encountered also.

This excavation was replaced with 8 ft of bank-run sand and gravel put down in 6-in. layers and compacted with sheepsfoot rollers. The last foot is quarry-run material topped with fine screenings.

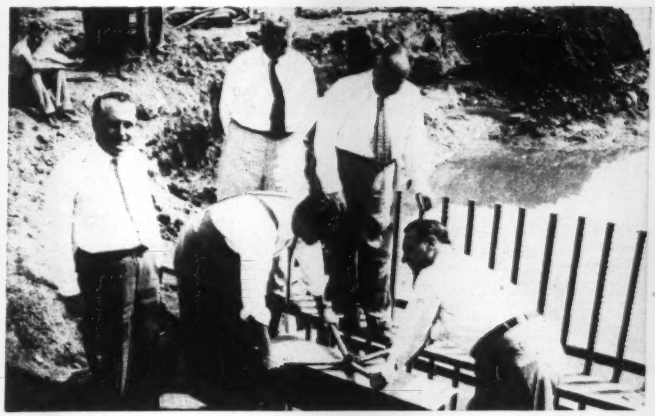
In conjunction with the excavating operation, a complete drainage system was installed in the basin. Twelve-inch porous concrete pipe was placed lengthwise along each bank and interconnected with three similar 18-in. lines that run across the basin four to five feet below ground level.

The 18-in. pipes were spaced between the three boxes (which run end to end) and lead directly into sumps at the river side of the basin. Each sump contained a 6-in. electric self-starting submergible pump which was controlled by a float. A 6-in. gasoline-driven pump served as a standby.

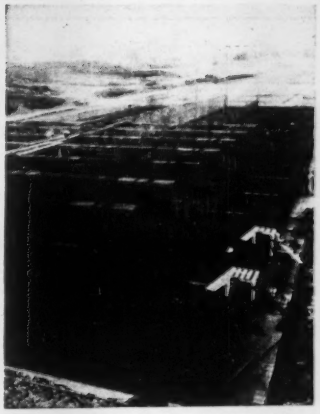
• **Bottom slab form**—A 4-in. thick concrete slab, reinforced with a light-gage wire mesh, was poured to support Boxes 2 and 3 during their construction. The compacted subbase supported a unit loading of two tons per sq ft. A curing compound sprayed on the slab also prevented adhesion of the box concrete to the form slab when the boxes were floated.

The foundation for the bulkhead box (No. 1) differs because heavy ribs 20 ft on centers run transversely across the box and extend below the bottom slab. Wood piles, driven to rock, carry the resultant concentrated loads. These work piles were capped with reinforced concrete beams.

• **Prefabricated reinforcing**—All reinforcing steel was received in 60-ft lengths, except for 2-in. square column bars, which were delivered in specified lengths. The steel yard, at one end of the drydock, was set up with various



VALVE IS TURNED and water begins streaming in. Comm. Edw. Cavanaugh of NYC Dept. of Marine & Aviation (also shown pointing in the cover photo) and aide do the honors, while Bill Denny (on cover too), Emil Praeger and Roger Corbetta look on.



REINFORCING was welded into assemblies which gantry cranes placed ahead of wood forms.

notched templets and jigs that located spaced and held bars for repeated prefabricated assemblies that were tack welded into rigid units.

Templets were used to make up reinforcing mats for the bottom slabs of Boxes 2 and 3. Weighing up to eight tons, these mats measured 40 x 60 ft. A sufficient number of intersections were tack-welded so the assemblies could be handled without distortion.

Jigs were used for transverse upper and lower frames and column cages. For Boxes 2 and 3, the transverse lower frames were assembled into three units, each weighing about 15 tons, and were moved by gantry crane (two 25-ton gantries ran on tracks, one on each side of the boxes). When in place, the separate units were butt-welded into a continuous frame 126 ft long by a job-developed portable submerged-arc welding machine. Upper frames were fabricated in single assemblies weighing 15 tons.

A special jig was devised for complete reinforcing frames of Box 1. These units consisted of bottom frame, interior columns, side frame and top frame and measured 83 ft long, 28 ft high and 3 ft wide, each weighed 27 tons. Two gantry cranes handled them.

Except for slab and beam steel, all reinforcing was placed ahead of the wood forms. More than 5,300 tons were set in all.

In many instances, there was so much reinforcing that no room was left for lapped splices. Long bars had to be butt-welded before assembly. An automatic submerged-arc welding device was rigged up by the contractors. It contained a hollow, water-cooled split mold of brass. Beveled ends of the butted rods were joined together by metal from the welding rod which was fed through a funnel-shaped opening on top of the mold.

The device was eminently successful. Including setup and removal time, only 90 sec were required to butt-weld 1¼-in. round bars.

Forms were fabricated in large panels that could be handled by cranes. Panels were made up of 3 x 6-in. studs, double 3 x 6-in. wales and ⅝ and ¾-in. thick plywood skins.

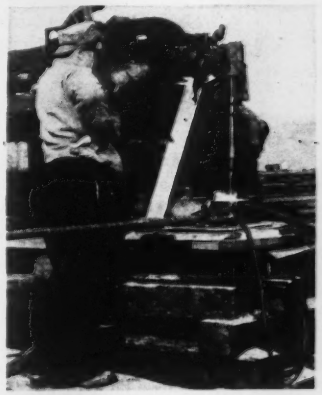
• **Concrete control**—Concrete attaining 5,000 psi in 28 days was required. Both an admixture and an air-entraining agent were used, ¼ lb of admixture and 1 oz of air-entraining agent per sack of cement.

For Box 1, a cubic yard of concrete contains 550 lb of cement, 1,110 lb of sand and 1,960 lb of gravel, with 4.3 gal of water per sack of cement. For Boxes 2 and 3, the mix is 568 lb of cement, 1,080 lb of sand, 1,145 lb of gravel and 910 lb of stone, with 4.3 gal of water per bag of cement. The difference in the mixes is due to the desire of the contractor to use as light a concrete as possible for Box 1, for ease in positioning it, since it will be set higher than the other boxes.

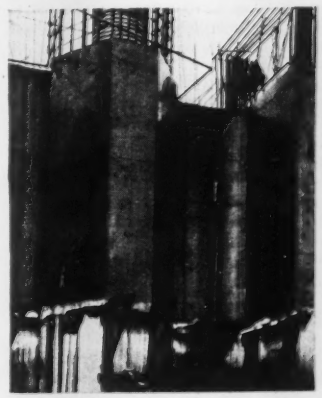
The coarse aggregate, selected for one of mixes after numerous tests, was a combination of trap rock from Haverstraw and gravel from the Port Washington, Long Island area. Broken stone could not be used exclusively since it yields a relatively harsh mix.

Cow Bay sand from Long Island Sound was the fine aggregate; Type II portland cement was specified.

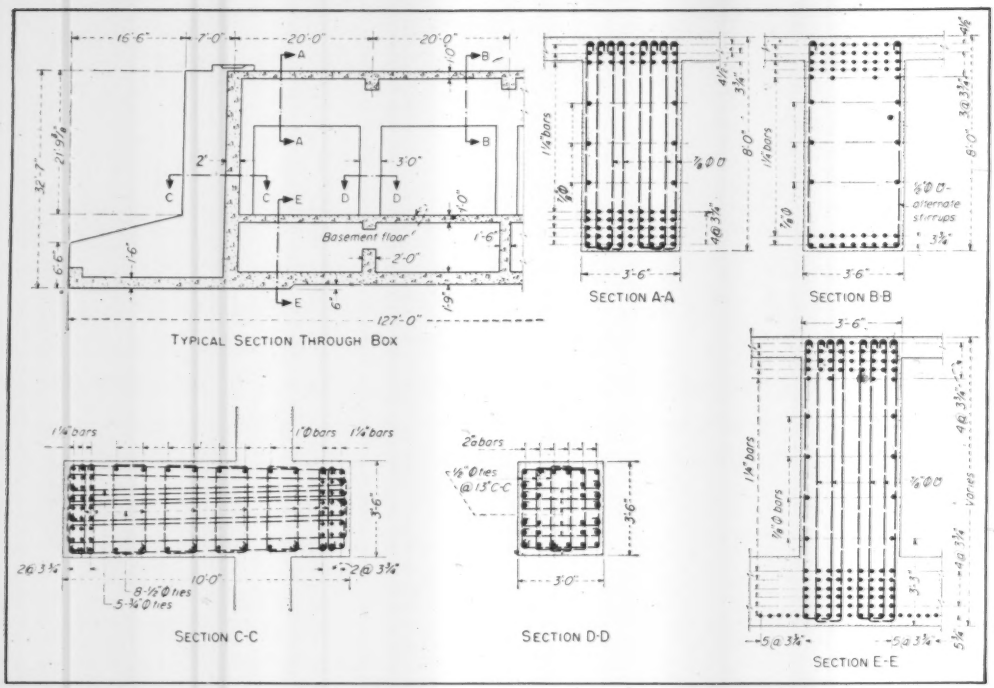
A 300-bbl cement-storage bin was set up adjacent to a railroad siding in West Haverstraw, feeding cement dump-trucks which transported the



SUBMERGED ARC WELDER joined butted ends of reinforcing bars quickly.



SPRINKLER SYSTEM gave continuous water cure when sealer wasn't used.



SECTIONS THROUGH BOX 2 (No. 3 is same) show congested reinforcement which left no room for lapped splices.

cement to another 300-bbl storage bin at the site. The aggregate bin, right alongside, had three-compartments and a 200-ton capacity.

The mixing plant was composed of seven truck mixers, each turning out 5 cu yd of concrete per batch. They delivered into 2½-cu yd buckets, which were handled by the gantry cranes.

• **Pouring**—Boxes 2 and 3 required 36 pours—6 across the boxes and 6 lifts. The lifts consisted of: (1) Bottom slab, (2) side walls to underside of basement slab, (3) basement slab and beams, (4) exterior walls and columns to underside of transverse frames, (5) frames and exterior walls to underside of roof slab, and (6) roof slab and beams.

Box 1 required 18 pours—6 across and 3 lifts. The latter were: (1) Bottom frame and basement beam and slab, (2) exterior walls and interior columns to underside of roof slab, and (3) roof slab and beams.

All concrete was vibrated internally. Before pouring against previously placed concrete, the surface was sandblasted at first to insure proper bonding. This was discontinued when job records showed that removal of the sand from the undersides of reinforcing and from form surfaces was difficult, time-consuming and expensive.

Instead, a set-retardent form-coating compound was used and proved to be just as satisfactory as sand blasting but minus the accompanying difficulties. It was applied to the forms just prior to pouring. After stripping, the concrete surfaces were washed with air and water. They were kept wet for 24 hr prior to pouring against them.

• **Careful curing**—Concrete was cured with a white pigmented sealing compound. In requesting its use instead of water curing, the contractors stated that the white compound would reduce considerably the heat absorbed from direct sunlight, yielding a lower and more uniform temperature and less cracking from thermal expansion and contracting. In addition, the sealing compound results in a more uniform curing of concrete over a greater period of time than does seven days of water curing with a sudden dryout.

A pressure-type portable sprayer equipped with an agitator applied the sealer in one coat. Unformed concrete surfaces were sprayed after finishing operations were completed, formed surfaces after forms were removed.

In some instances, concrete received a seven-day water cure prior to the sealing compound.

• **Basin flooded**—During the early part of July, all construction equipment was removed from the Haverstraw basin preparatory to reflooding. A 30-in. dia pipe was run from the Hudson, through the embankment and into the pit. On July 16 the valve was opened and water began to stream in. Last week the basin was filled.

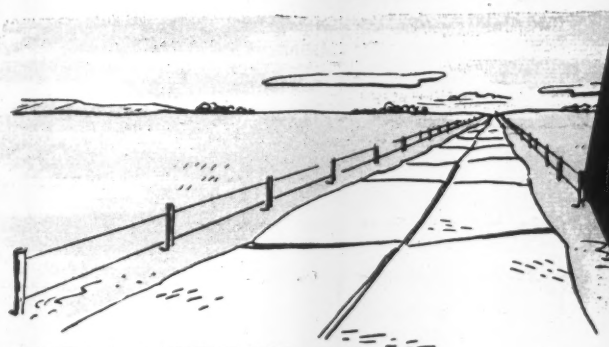
• **Who's who**—Merritt-Chapman & Scott and Corbetta share a $5,685,491 contract for the pier's substructures and deck. Construction of the deck and supporting girders which rest upon the boxes—to be performed when the boxes are towed to the waterfront location but not yet sunk—will be described in a subsequent article, as will be the towing operation.

Charles Prokop is in charge of the project for Corbetta, William Denny for MC&S. Leonard Ott is project manager, John Tantillo, general superintendent, and Walter Campana is in charge of reinforcing.

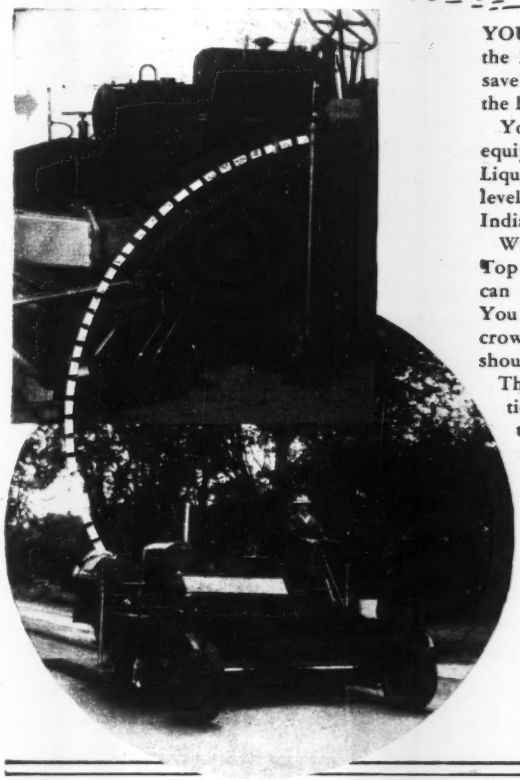
The pier was designed by Emil Praeger of Madigan-Hyland, New York City consulting engineers. Cornelius Barrett is field representative.

The City of New York, the owner, is carrying out the project under the supervision of its Department of Marine and Aviation.

What are you going to do



with a ROAD LIKE THIS?



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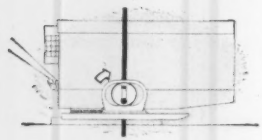
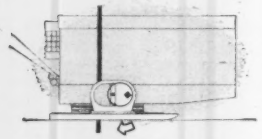
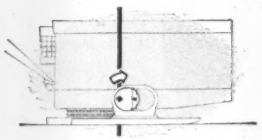


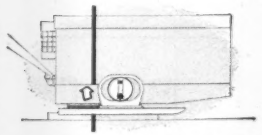
1. Working position. Shoes up — cams in center — guide roller pin at top.



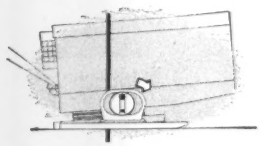
4. Base is lowered as cams continue to roll.



2. Cams rotate — advance shoes and place them on ground.



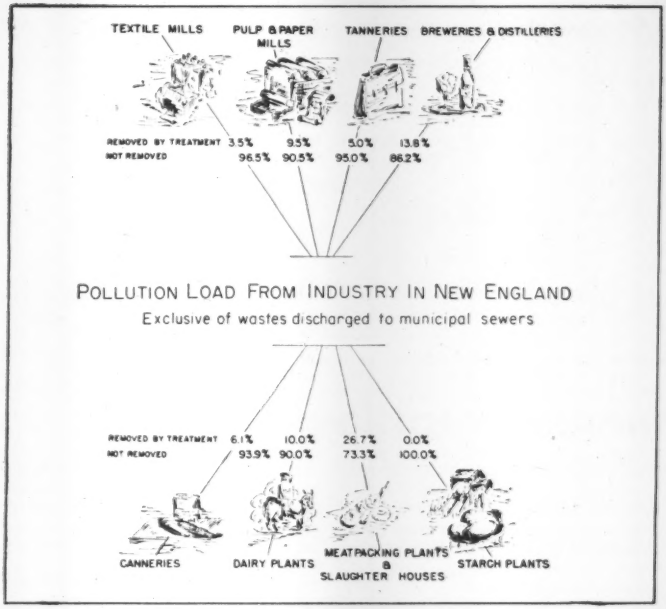
5. Potation completed — return to original position.



3. Leading edge of base lifts and skids along as cam rolls to half-way point in rotation.

BUCYRUS ERIE

South Milwaukee Wisconsin


TEXTILE MILLS
PULP & PAPER MILLS
TANNERIES
BREWERIES & DISTILLERIES
REMOVED BY TREATMENT 3.5% 9.5% 5.0% 13.8%
NOT REMOVED 96.5% 90.5% 95.0% 86.2%
POLLUTION LOAD FROM INDUSTRY IN NEW ENGLAND
Exclusive of wastes discharged to municipal sewers
REMOVED BY TREATMENT 6.1% 10.0% 26.7% 0.0%
NOT REMOVED 93.9% 90.0% 73.3% 100.0%
CANNERIES
DAIRY PLANTS
MEATPACKING PLANTS & SLAUGHTER HOUSES
STARCH PLANTS

NEW ENGLAND has inventoried a portion of its stream pollution problem. (NEIWPCC chart.)

Industrial wastes: How bad?

INDUSTRIAL LEADERS have yet to assume their full responsibility in the pollution abatement and control program. So says the New England Interstate Water Pollution Control Commission—and the commission has ample proof of this statement in its area-wide inventory of industrial wastes, just released.

The commission found 1,939 plants producing liquid industrial wastes. Its survey, including in all some 2,775 industrial establishments, was made by Prof. Henry Campbell, head of civil engineering at the University of Rhode Island—assisted by staff members of the university's Engineering Experiment Station. A federal grant financed the exhaustive study of conditions.

(The federal government's report on New England drainage basins, put out last year by the Public Health Service as a cooperative state-federal effort, is a much more detailed inventory of *all* sources of water pollution in the area. In its coverage of the industrial waste picture, this one of 15 such basin reports (ENR Feb. 22, 1951, p 37) says basically the same thing as the more recent interstate agency report. But it goes into far more detail—covering a total of 22 sub-basin, and including 148 pages of tables and type—than the readable, 21-page commission report.)

• **Not much waste treatment**—Findings of the commission inventory put pollution from plants in the area (New England plus thin strips of eastern New York State) at a population equivalent of 4,934,820. And 93.4% of this load discharges untreated.

In Connecticut, where the region's metal industry is heaviest, 134 metal plants discharge to waterways and 47 to sewers; only 24 treat their toxic discharges.

In the entire region, there are 1,531 industrial plants producing organic wastes—canneries, breweries, distilleries, dairies, meat-packing plants, pulp and paper mills and textile mills. Of these, only 5.1% provide waste treatment. About 41% discharge to sewers; over 53% just discharge. Among textile producers, largest segment of the organic pollution contributors, only 3.8% treat their wastes; 65% dump directly into streams. Textile mills cause in total 46% of the region's industrial pollution.

Biggest contributors of pollution within the textile industry are wool-scouring and wool-finishing plants. Then come dyeing and finishing mills. Cotton, silk and rayon industries are lesser offenders, but still offenders.

Also dumping wastes in the nearest waterway are: 121 of 147 pulp and paper plants; 131 of 211 canneries; 24 of 25 starch plants.

In the more industrialized states of the region—Massachusetts, Connecticut and Rhode Island—some 55% of all manufacturing plants are hooked up to municipal sewers. In the less populous places — New Hampshire, Vermont, Maine and those pieces of New York included—this percentage is appreciably less.

State by state the organic load dumped breaks down this way: Maine, 40%; Massachusetts, 28%; New Hampshire, 12%; and 20% for the remaining areas.

Pulp and paper industry pollution, heaviest in Maine, is reduced only 9.4% throughout the area by treatment. Additional effective reduction of pollution is achieved by seasonally controlled discharges according to figures in the report.

• **Heavily industrialized area** — New England is not a typical U. S. region. With only 2% of the nation's land area it supports some 10% of all U. S. production workers in manufacture. The region's per capita income is above average and compares with that of other industrial areas. Manufacture plays a big part in the region's economy; and industrial water is of course vital to much of that manufacture.

PHS in its report on the area concluded that water is New England's most important natural resource, and that pollution damages have been greatest to industrial water supply—and recreation, also a major area industry.

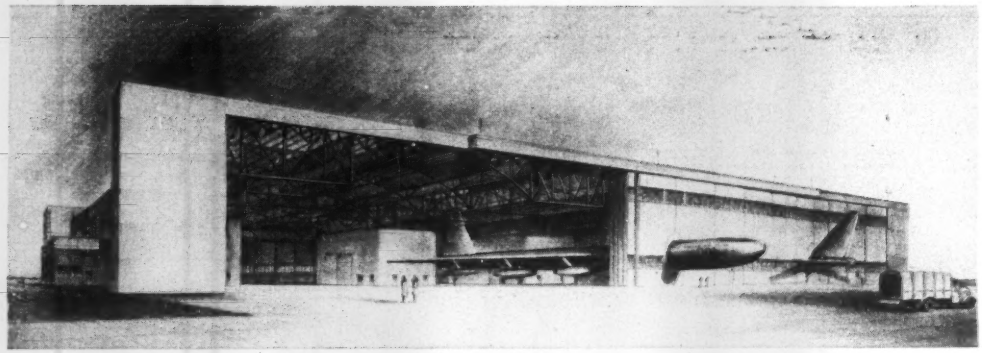
Counting only industrial-waste discharges going directly into streams, PHS found a total of 1,147 sources of pollution, 142 having treatment facilities.

• **How much construction?**—An indication of how much construction it will take to correct the industrial waste problem in New England alone is in these figures, taken from the PHS survey:

There is need for 671 new plants, 69 enlargements, and 8 replacements of existing works.

At the time the state-federal report was printed, formal action had been taken to require less than 10% of this construction. PHS recommended plans be submitted and construction expedited on this required work where reasonable treatment methods were known.

Additionally, programs for further research and public education are advocated.



MAINTENANCE HANGAR with cantilevered roof for the Air Force will have an unobstructed entrance for its full length.

Standardized hangars cantilever 104 ft

SOME DIFFICULT PROBLEMS were encountered—and solved—in setting up a design for a "standard" Air Force maintenance hangar, for which large unobstructed floor areas are a major requirement. The Air Force wants a 60-ft clear height for a width of 40 ft in the center of each bay to accommodate the tails of the big planes. Elsewhere, a 40-ft clear height is required.

The maintenance hangar is one of many types of military buildings for which the Corps of Engineers is preparing standard plans to cut engineering costs. These plans may be used for structures in any part of the country with slight modifications to adapt them to local conditions.

The task of preparing drawings and specifications for the maintenance hangar was assigned to The Kuljian Corporation, Philadelphia, Pa. To meet Air Force specifications, the firm investigated different types of long-span framing, then proposed that the hangar roof be supported on steel cantilever trusses. Transverse to the main entrances (on opposite sides of the building), the trusses will project more than 90 ft beyond their supports.

This type of construction not only provides the large clear floor areas required by the Air Force but also makes possible unobstructed entrances for the full building length.

• **Hangar dimensions** — Three basic sizes of standardized hangar are proposed. A heavy-bomber hangar will be 600x250 ft; a medium-bomber hangar, 350x250 ft; and a fighter, or smallest basic class hangar, 250x250 ft. In addition, two other sizes are specified to permit future expansion of the smallest basic unit to accommodate the larger planes: medium-bomber expanded-type hangar, 370x250 ft, and heavy-bomber expanded-type hangar, 540x250 ft.

All these buildings are similar. Framing is structural steel. Foundations are concrete, designed for an assumed soil-bearing value of 4,000 psf. Exterior walls consist of rigid insulation board and corrugated asbestos-cement panels or protected metal siding. Floors are reinforced concrete slabs. Roofs have steel decking, with rigid insulation on the top.

• **Three types of trusses**—The roof decking is supported at about 7-ft intervals on steel purlins cantilevered past supporting trusses in alternate spans. Kuljian considers this type of construction more economical than simple-beam. The purlins in alternate bays are supported, respectively, on arched trusses or trusses with straight top and bottom chords, which extend in the long direction of the hangar.

Spanning either 100 or 120 ft, the arches provide the necessary clearance for the tails of planes. Since these trusses are supported on cantilever trusses, Kuljian called for three-hinged construction to eliminate stresses that might be created by unequal deflection of the cantilevers.

Straight-chord trusses span 60 or 70 ft between the cantilever trusses. In the end bays, they rest on brackets on wall columns. These supports are designed to permit movement of the trusses that may be caused by deflection of the cantilever trusses supporting the other end.

Also in the end bays, arch thrust is transmitted through K-bracing in the plane of the bottom chords of the transverse trusses to braced steel towers and door-pocket framing, which in turn transmit the forces to the foundations.

The two types of longitudinal truss are supported on transverse trusses that cantilever 93 ft 6 in. on either side of towers along the center of the hangar. Canopies over the main doors project 11 ft farther out, extending the cantilever to 104 ft 6 in. from the towers.

To simplify fabrication, Kuljian adopted wide-flange sections for the cantilever trusses.

• **Multi-purpose towers** — Successive pairs of these trusses are supported on free-standing towers, 63x60 ft in plan, which occupy the center portion of the bay spanned by the straight-chord trusses. The towers serve several purposes: (1) They support the cantilevers; (2) they transmit lateral forces to the ground; and (3) they house shops, offices, elevators, toilets and stairways. The towers are three stories high and enclosed in masonry.

Hangars are so designed, Kuljian reports, that settlement of a tower will not produce any strain in framing in an adjoining bay.

• **Design loads** — To simplify local adaptation of the structure, Kuljian designed the roof for three different snow loads—20, 30 and 40 psf. These loads provide for the possibility of uneven snow loads caused by strong winds. Provision also is made for loads from 5-ton capacity cranes.

Towers were checked for earthquake forces for three intensity zones, in accordance with the Uniform Building Code of the Pacific Coast Building Officials Conference. Stresses produced by seismic forces were found to be less than 133% of the normal design stresses.

Wind load on vertical surfaces was taken as 20 psf pressure and 12 psf suction, or a total of 32 psf. Wind

uplift on the roof was assumed to be 24 psf.

Under a 40-psf snow load and with a temperature change of 30F in the top chord, ends of the heaviest cantilever trusses were computed to deflect only 5⅜ in. However, the trusses will be cambered 8¼ in., to slope the roof for drainage. Straight-chord trusses will be cambered ½ in., and arch trusses ¾ in., to eliminate the possibility of the roof sagging.

• **Main doors**—Since the roof supports are well in the interior of each building, rolling doors are designed to open up the full length of the hangar on two sides—as much as 600 ft without obstructions. Composed of units 40 ft wide and 60 ft high, the doors will be telescoped in pockets at each end of the structure when in the open position.

Each door will be operated by a built-in electric motor controlled by constant-pressure type pushbuttons at both ends of the door. Power will be obtained from trolley ducts installed between steel tee guides at the top of the doors. In the event of power failure, doors can be operated with jeeps.

Because of limitations imposed by transportation facilities, the 40-ft wide door units will have to be built of several panels, each less than 12 ft wide. Panels will be shipped separately, then bolted together on the site.

Constructed of structural steel channels and beams and insulated with glass fiber, the panels are 15 in. thick. Those forming the lower part of the doors are faced on the outside with 13-ga steel. Those for the upper part are faced with 22-ga crimped, galvanized steel sheets. The remainder of each door unit contains steel sash.

Supporting the panels at the bottom of each door unit is a 40-ft "carriage" of structural steel channels. The carriage rides on two 24-in. dia, double-flanged wheels, which roll on 60-lb steel rails.

To keep costs down, the sizes of the hangars were limited, with the result that tails or noses of the largest bombers may have to project outside the doors. When this is necessary, some of the steel door panels may be removed and canvas panels inserted. Equipped with galvanized cable draw strings, the canvas may be pulled close around the projection. This means that canvas panels with different cutouts will have to be supplied, "custom tailored" at the site, to fit the different types of bombers. Brass "bag snaps" are to be furnished for quick interchange of canvas.

Two-door units in which the canvas may be inserted are 10 ft wider than necessary to provide the customary laps with other units. This permits easier parking of different types of aircraft in the hangar at the same time, inasmuch as the extra lap furnishes leeway in two directions in closing the door.

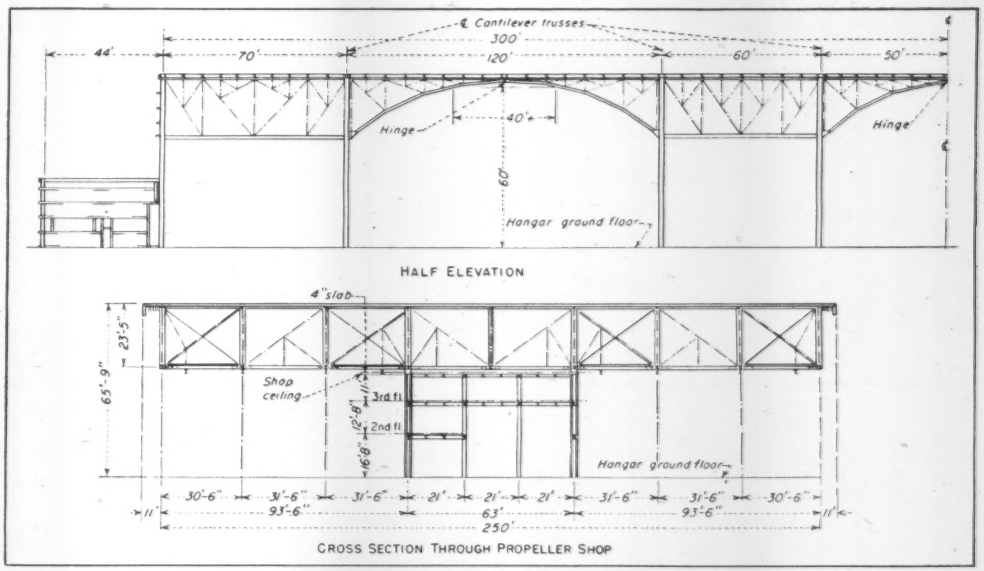
• **Cranes and monorails**—Two complete crane systems of 5-ton capacity—one on each side of the row of shop towers — will transport engines and other heavy equipment to repair shops. Monorails will transfer loads from one crane system to the other.

Crane rails are attached to the underside of the roof framing. Even so, they were in the way of the tails of the larger bombers. Kuljian solved the problem of eliminating this obstruction by designing a section of the rails to rotate upward or horizontally, out of the way. As a result, a complete system of safety interlocks is required, as well as rail stops capable of halting a fully loaded moving crane.

For fire protection, a deluge sprinkler system designed to deliver 21 in. of water over the hangar area per hour will be installed.

• **Adaptation to site**—Despite the versatility of the design—provision for three roof loads, three intensities of earthquake force, three temperature zones and heating with three types of fuel—an engineering study still must be made for each hangar. Local conditions, such as type of soil, height of groundwater table, local temperatures and wind, have to be considered.

In view of its intimate knowledge of the design, The Kuljian Corporation has been retained as engineers for more than 20 Air Force maintenance hangars to be erected in different areas.



MAIN ROOF FRAMING consists of cantilever trusses supported in pairs on steel towers along the center of the hangar. These trusses carry three-hinged arch and straight-chord longitudinal trusses. Towers will contain shops and offices.

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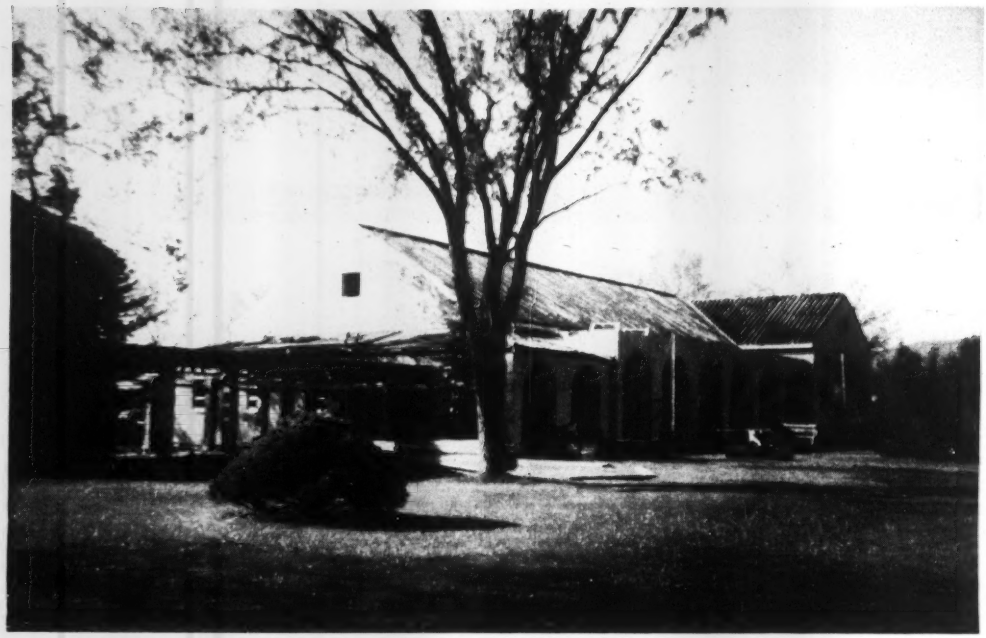


NATIONAL COUNCIL CONSTRUCTION by the Boy Scouts of America this year includes $700,000 worth of work at Philmont Scout Ranch, in New Mexico. This is a training center building of architectural style typical in the region.

Engineering makes for better camping

Here's how National Headquarters Engineering Service helps local Boy Scout councils maintain camp standards; it also lets contracts for national projects

TWO PARK AVENUE, NEW YORK, is an address well known to millions of Boy Scouts and "scouters" throughout the United States. It is the organization's national headquarters.

Not so well known is a small group of men, there at headquarters, called the Engineering Service, which has its fingers in $5 million worth of construction annually. This group influences this work through its advice to 641 local councils. In addition it has direct responsibility on all National Council projects.

The total of all this work, of course, causes hardly a ripple in the $30-billion construction industry, yet it is of interest, and of some significance, from two standpoints: The standards set for camp housing, sanitation and water supply influence camp building of all kinds, including construction camps; and the thousands of boys, who live in and sometimes help build the facilities get here their first glimpse of the construction processes, which may well influence them in their later choice of a career.

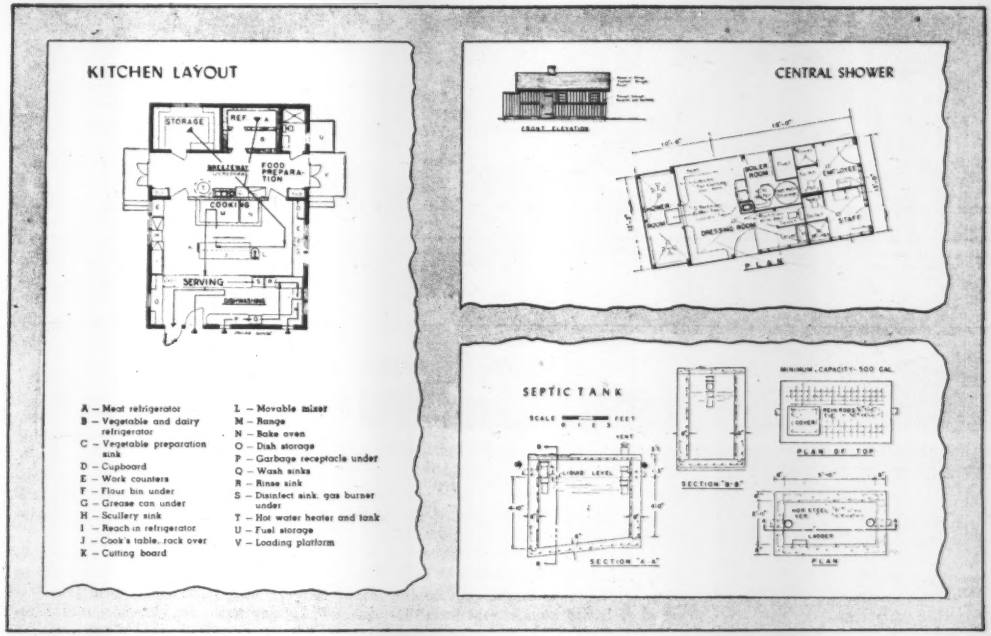
Joseph Bishop, a civil engineer with national and state park construction experience behind him, has been in charge of the Boy Scout Engineering Service for 12 years. Under his direction work two architects and three landscape architects. In addition there are three field men who supervise National Council construction and visit the local councils to give on-the-spot advice.

• **National Council construction**—At present Mr. Bishop's staff has two major national assignments: $700,000 worth of work at a national camp in New Mexico; and arrangements for a 1953 "jamboree" in California. Last year the group completed $1 million worth of construction at Mortimer L. Schiff Scout Reservation, in the hills of northern New Jersey.

The New Mexico site is Philmont Scout Ranch, given to the Boy Scouts by oilman Waite Phillips of Tulsa. Two of Mr. Bishop's staff are working full time there, on two large camps and a national volunteer scouters training school. Construction is expected to be completed this summer, after which more than 10,000 boys and 1,600 adults will be in attendance.

In preparing for this work, the Engineering Service consulted with key Scout officials to determine needs and available funds, then prepared preliminary plans and estimates; engaged consulting engineers to make designs, then awarded competitive bid lump-sum contracts. One major item now under construction at the Philmont Scout Ranch is a water-supply dam, designed by Black and Veatch, Kansas City, Mo. The contractor is Jack Adams of Los Alamos, N. M.

• **Jamboree preparations** — Another headquarters field man now is at Irvine Ranch, Newport Harbor, Calif., getting ready for the 1953 jamboree. The week-long affair will attract 50,000 campers from the U. S., its territories and foreign countries. One requirement is 1½ million gallons of water daily. Temporary water lines must be installed to service about 40



DESIGN SERVICE to local councils begins with a book, "Camp Sites and Facilities," published by the national council. These are typical illustrations taken from the book. They contain information that would be useful to a contractor planning a construction camp.

"sections"—sites for 1,300 boys each. Each section has kitchens, showers and latrines. Contracts for these and other facilities will be let next spring —covering construction and (after the week of use) dismantling as well.

• **Local council aid**—Turning to local-council aid, an important service has been the establishment of camp standards. Standards development has been a continuous major assignment of the Engineering Service, and while the standards are used in national construction, they probably have their largest effect on local-council work. They are now set forth in a book, "Camp Sites and Facilities," which the national organization published in 1950. This is supplemented by two loose-leaf publications, one called "Data Sheets," which presents plans and elevation of about 20 construction items, including such things as a sewage disposal system, a camp caretaker's residence, etc., the other called "Brochure Material," which contains architects' renderings of typical structures.

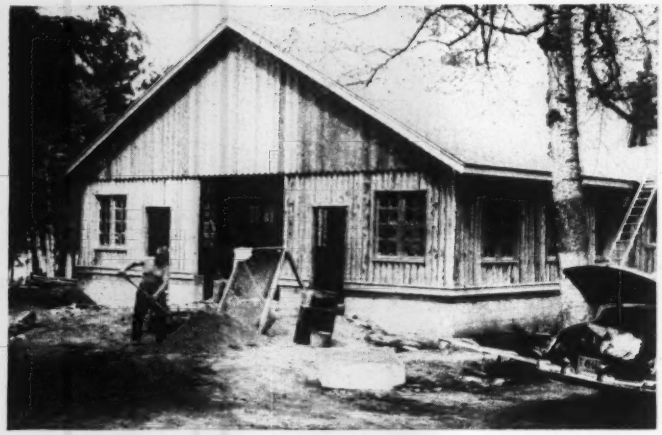
From these publications, for example, it may be learned that the water-supply requirement is 30 gallons per boy per day; or what the friction loss in various sizes of pipe will be, or the hot-water requirements for kitchens, showers and dispensaries. Waste-disposal standards cover latrine and shower-house designs, septic tanks, disposal fields and grease traps. Suggested designs for outdoor fireplaces

JOSEPH E. BISHOP

In charge of Engineering Service for the Boy Scouts of America since 1940, Mr. Bishop carries on work begun in 1933 under the late Harvey Gordon. Mr. Bishop is a 1926 civil engineering graduate of the University of Georgia. He spent three years at Bear Mountain, New York, with the Palisades Park Commission, then a year as a structural designer with Babcock and Wilcox before joining the New Jersey Highway Department to work on steel design for the Pulaski Skyway. He was with the National Park Service from 1933 to 1940.

One of Mr. Bishop's big projects with the Boy Scouts has been preparation of the book "Camp Sites and Facilities," which is described in the accompanying article. With the aid of many scout officials, he and others in the Engineering Service did the writing during a four-year period. Standards summarized in the book were quite well established before writing began. They were based on Boy Scout experience, as well as on extensive research into publications of organizations like U. S. Public Health Service, National Park Service and the New York Park Department.

The Engineering Service is a part of the Division of Program in the national office of the Boy Scouts of America at 2 Park Avenue, New York. Each service and division of the national office is represented on the National Executive Board by a board committeeman. The chairman of the Engineering Service Committee is Cherry L. Emerson, vice president of the Boy Scouts of America and also vice president of the Georgia Institute of Technology at Atlanta. Mr. Emerson was, for many years, chief engineer for Robert and Company, Engineers of Atlanta.



DINING HALL at Rochester council's Massawepie Camps is a prefabricated building that was erected in a month.

and swimming pools are also given.

Building standards cover such structures as dining halls, lodges, storehouses and cabins.

While national headquarters furnishes the standards, it also stresses the importance of obtaining local professional architectural advice for any important construction.

• **Field-visit service**—Engineering Service's aid to local councils goes still further. When a local council is considering a camp development, it may ask the national headquarters to send a field man to inspect the site. Engineering Service then will make recommendations and draw up camp layouts and preliminary plans based on data brought back by the field man. Each field man visits as many as 50 existing and proposed sites in a year.)

The camp layouts and preliminary plans are impressive, generally being bound as a series of 40 x 30-in. colored sheets. Along with this brochure goes Engineering Service's written recommendations as to such things as site purchase; long-range planning; cost estimates; need for local professional services; camp maintenance and protection and camp adequacy.

In this connection also Engineering Service reviews all annual reports from local councils to determine where any below-standard situations exist.

All this activity at the national level, however, is merely a means to an end —which is to aid the local councils. And each year one or more locality has a large camp problem to solve. This year for example, three local councils—St. Louis, Mo., Detroit, Mich., and Rochester, N. Y.—are pushing camp construction programs in the half-million-dollar range. The Rochester camp is typical of the work being done.

• **A camp is born**—After World War I, Otetiana Council, Rochester, decided to do something about its dissatisfaction with a 100-acre camp it had used for a few years. Several new sites were found, including a 2,800-acre one in the Adirondack Mountains near Tupper Lake, N. Y. The site was named Massawepie, after its major lake. In 1948 Mr. Bishop visited the sites and submitted a report. The council gradually leaned toward Massawepie, and Mr. Bishop revisited it twice in the next three years. The last time, in the fall of 1951, was just before purchase of the property.

He brought the latest site data back to New York and assigned his staff to completion of the development plans.

• **How local council worked**—Meanwhile, the local council had laid a substantial groundwork. The first move was to establish a search committee. It was this committee's work that led to the campsite purchase, at $105,000. In addition to the main lake (450 acres), the property included nine ponds. It also had a collection of large and small summer cottages, mostly 60-year-old monsters, along the lake shore.

Next a special 20-man Massawepie Camp Development Committee was formed. This committee meets weekly. Each member of the committee is a local leader in a field that would be involved in the camp—civil engineering, architecture, restaurants and law, for instance.

A development goal of 1,000-boy capacity was established. To accomplish this goal $450,000 was considered necessary, so the scouts went to the Rochester Community Chest and obtained permission to conduct a special financial drive. Handled by a professional fund-raising organization, the drive yielded $544,000, (a fortunate thing in view of rising construction costs).

Donations also took the form of engineering and architectural services by local firms. Two commercial organizations sent their surveying crews to complete topographic surveys, and the power company at the site is delivering single-phase current to a point in the heart of the property-development area.

Final decisions on camp policy—what to build and where—rest with the council's regular camp committee, which accepts or modifies the national Engineering Service's recommendations on camp development, establishes policy and then turns the execution of the work over to the Massawepie committee.

The council's paid staff, of course, is the link between the Engineering Service and the camp committee.

In general, the Development Plan has been followed. Moreover, all buildings substantially follow national standard layout plans.

Eventually, the camp will have three or four independent camp areas at mile-apart locations around Lake Massawepie. The first, for 250 boys, was ready for this summer's 8-week camping season. Work will proceed through the summer on the second area, and on a workshop, garage and a superintendent's house. For the time being, staff will live in the better existing cottages. Others are being torn down for salvage by local people.

Plans for further construction are indefinite, depending partly on demands of the boy population.

Principal works now being completed at the first site are an access road, a 300-boy dining hall, a "trading post" or camp store, cook's quarters and several troop sites (tent platforms), together with water and sanitary facilities. For construction speed in this first area, the council bought precut buildings.

• **Contract work**—The pre-cut buildings were bought and erected on a lump-sum basis. Foundations, plumbing and electrical work were let to Tupper Lake contractors on an upset-price basis, following plans and specifications prepared by the Massawepie Committee.

With the exception of some roadwork, the remainder of the present construction and site work is being done by force account.

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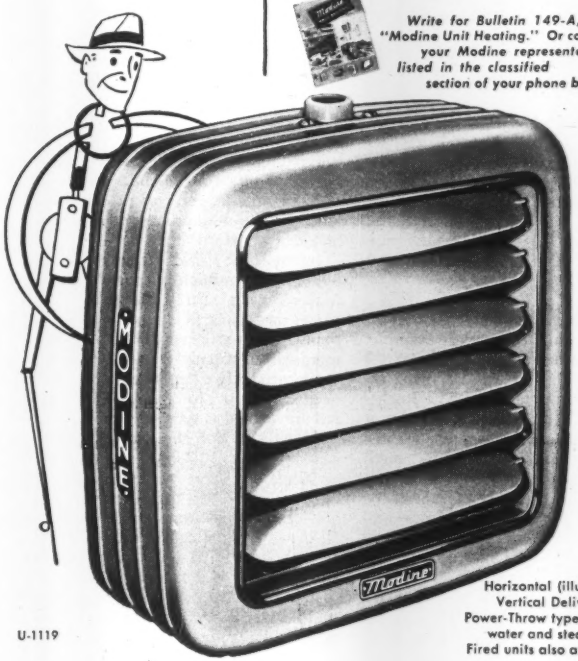

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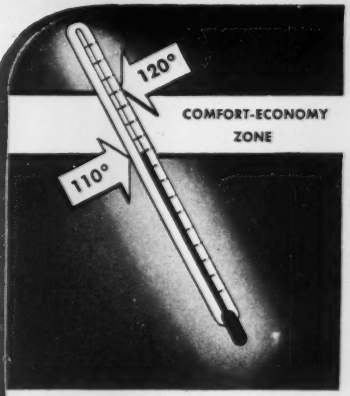

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CONSTRUCTION LABORERS take a break, and a drink from a kettle, on the road-building job of connecting rich Bomi Hills iron-ore deposits with Liberia's port city of Monrovia. WHO assures Liberia healthier workers.

What is WHO?

In the six short years since its founding, WHO—the United Nations' World Health Organization—has established itself as an agency strong for environmental sanitation and potentially influential in expanding world construction markets. It is an agency that means something to you if you are: Sanitary engineer, overseas constructor, world-wide consultant, or just plain taxpayer.

The problems of public health and economic development are inseparable. What WHO is doing today is a natural complement to worldwide technical assistance programs also underway. Seeds of environmental sanitation and preventive medicine sown today should bear fruit abundantly tomorrow for engineers prepared to service a literally healthier world construction market.

There's no denying what can be and already has been done. The record speaks for itself. Not alone WHO's record, but also that of antecedent agencies in the field of international assistance, prove by accomplishment what is possible.

Earliest agency in the international health field was probably the Pan American Sanitary Bureau (1902). In 1913 the Rockefeller Foundation set up what is now its Division of Medicine and Public Health. The League of Nations in 1923 organized its Health Organization. And the Institute of Inter-American Affairs has functioned since 1942. All these groups have done or are still doing good work in the predominantly engineering problem of environmental sanitation.

• **The record speaks**—Take malaria, for example. It isn't the typical example; its an extreme, probably the most prevalent serious illness of man, according to Paul Russell of The Rockefeller Foundation. But let's take it anyway for a striking example of how much can be done, and of how much there remains to do.

Here are some figures from C.-E. A. Winslow's "The Cost of Sickness and the Price of Health," a 1951 WHO monograph:

In Thailand, malaria case-rates dropped from 50 to 7 per 1,000 in one year of work by WHO in cooperation with UN's Children's Emergency Fund.

In Northern Rhodesia's Copperbelt area, DDT and drainage brought total days lost in the mines from 2,030 in 1945 to 270 in 1949.

On Africa's island of Mauritius, in the Indian Ocean, almost complete elimination of Anopheles funestus cost only slightly more than 40¢ per capita—and halved the death rate.

In Sardinia, 1,000,000 Italians from the more crowded mainland are being settled where Malaria has been virtually erased as a barrier to economic development—courtesy of the Rockefeller Foundation.

In Ceylon, since introduction of DDT in 1947—for the first time in Asia—the national death rate has been cut almost in two at a cost of 22¢ per capital in the area treated.

In Pakistan, a WHO team put on a single-season demonstration in Malaria control which has been credited with jacking the rice crop yield 15%.

In Greece, six men and some inexpensive equipment caused a drop in Malaria that was accompanied by a 20 to 30% increase in crop harvest.

And so it goes. There is ample evidence of what one quarter of a U. S. dollar per capital per year can do for a malarial population—and the corollary step-up in human productivity is as evident.

• **But much remains**—Phenomenal successes against malaria are shadowed by the job still to be done. On this side of the ledger, Winslow reports:

Up to 10% loss of manpower is still suffered due to malaria in Southern Rhodesia. Its toll in India is priced at $224 million per year in economic loss. In the Philippines, one person in ten is a victim.

In total, the world has an estimated 300 to 350 million incapacitated by Malaria each year. There are still places on this earth where 80% of the population is stricken during the summer season—usually the season when their productive energies are most needed, whether for agriculture, manufacture or construction.

Malaria is not the only sapper of human energy to stymie economical development. As late as 1948, in Mexico, 22% of the mortality rate was assigned to waterborne diseases. Cholera, typhoid and forms of dysentery abound until pure water can be supplied and waste waters handled.

One of the world's biggest engineering jobs still remains the supply of safe public water supplies where they

(*Continued on page 54*)

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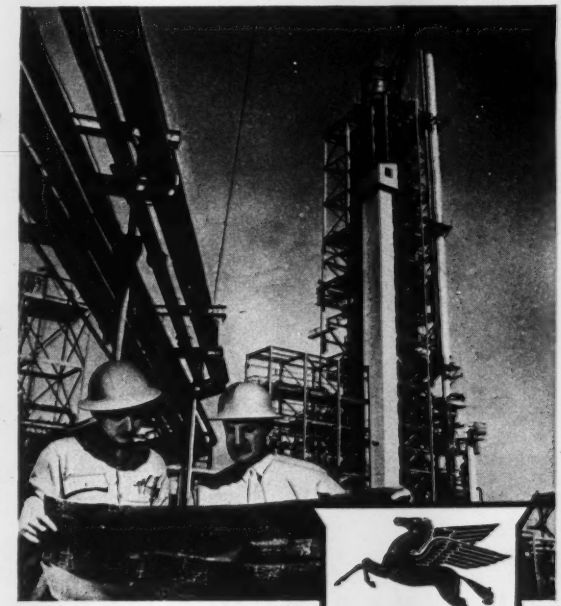

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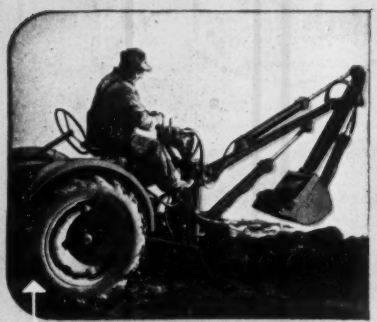
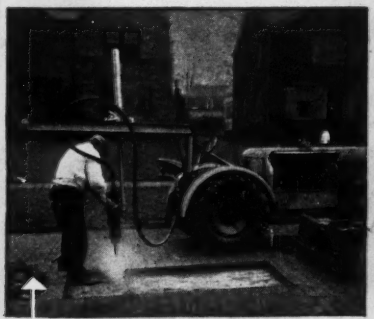


Hydraulically-operated Back Hoe — Tractor-compressor-back hoe combination offers big savings on digging jobs too small for power shovels, too big to be done economically by hand labor. Bucket sizes, 12" to 22". Digging depth, 6' to 7'. Swing, 60° each side of center.



Le Roi-CLEVELAND Patcher mounts on rear platform of Tractair. Drills closely-spaced holes within 7-foot radius, then breaches the section of pavement loose for easy removal. On this job, the bricks were removed first to get to the pavement underneath.

Pavement Breaking — Tractair puts air power to work running Le Roi-CLEVELAND Breakers. When the breaking job is done, Tractair mops up with its front-end loader. Tractair can be used also to run Le Roi-CLEVELAND sinker drills, clay spades, backfill tampers.

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The Mobildrill attachment is just one example of how Tractair's versatility pays off in lower costs and minimum investment in special equipment. The usefulness of Tractair can be multiplied by using Le Roi-CLEVELAND air tools for breaking pavement, clay digging, tamping fill. Tractair also can be used for loading, lifting, backfilling, snow-plowing, etc., when equipped with a front-end loader and special attachments.

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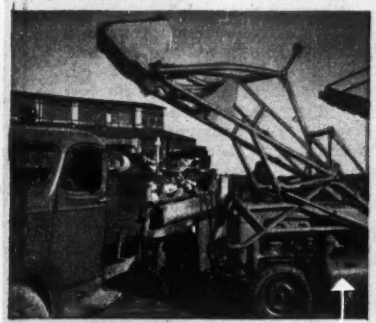
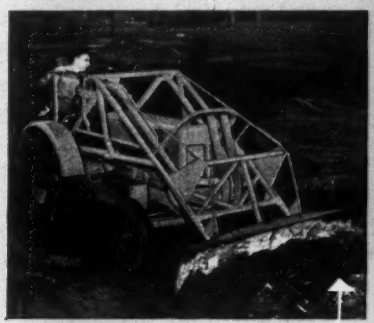


Loading — Front-end loader can be attached to Tractair in only a few minutes. Boom combines bucket and crane. Crane folds back out of way when not in use. Bucket holds 10½ cu. ft. — lifting capacity is 1000 lbs. Lifting capacity of crane is 800 lbs.



Backfilling — Replacing the bucket on the loader with a backfill blade adds to the variety of jobs a Tractair can handle. Backfill blade is 6' wide, mold board is 2'8" high. Maximum lift above ground is 1'4".

Trac-Jac — A Le Roi-CLEVELAND air-feed sinker drill mounted on a Tractair. Feeding and drilling controls are within easy reach of operator. The mobility of this unit makes it ideal for mud-jacking and many other applications.

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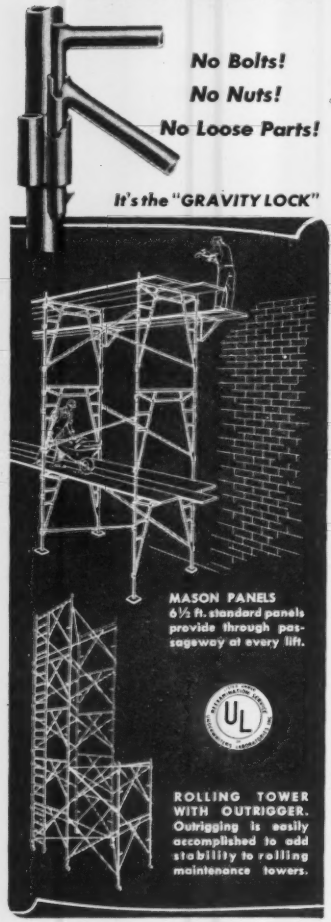
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AILING INDIAN put back on his feet by WHO cuts a fraction off the death rate, adds a fraction to the population figure. Health can make people reproductive and hungry. But it can also make them energetic and productive—if there's work to do.

do not now exist. A delegate from India to the Fifth World Health Assembly held recently in Geneva put it this way to Rolf Eliassen (MIT professor, interviewed by ENR on his return from the meeting): "Just give me one well in each village."

The water problem in many underdeveloped areas is not one of distribution, pumping, or treatment. It goes back further, to having no suitable source.

Generally speaking, water and mosquitos are number 1 and 2 immediate sanitary engineering problems in areas WHO will help. Sewerage, for the most part, is something for the future.

• **Who does WHO's job**—WHO's international health program is a team operation with the doctor, the nurse and the engineer playing the key positions. Clinical medicine must be backed by environmental sanitation—good water, food, housing, and sanitation.

Herman G. Baity, sanitary engineer professor from the University of North Carolina, recently arrived in Geneva for two years as head of WHO's Division of Environmental Sanitation (ENR April 10, 1952). Before him, Herbert Boesch, now at the U. of Minnesota, served in a similar position. R. N. Clark, formerly of TVA, is now on Baity's staff.

Abel Wolman, of Johns Hopkins University, was first chairman of an "expert committee on environmental sanitation" WHO established in 1949. This group put special emphasis on the need for sanitary engineering units at a high level of government to administer control of environment.

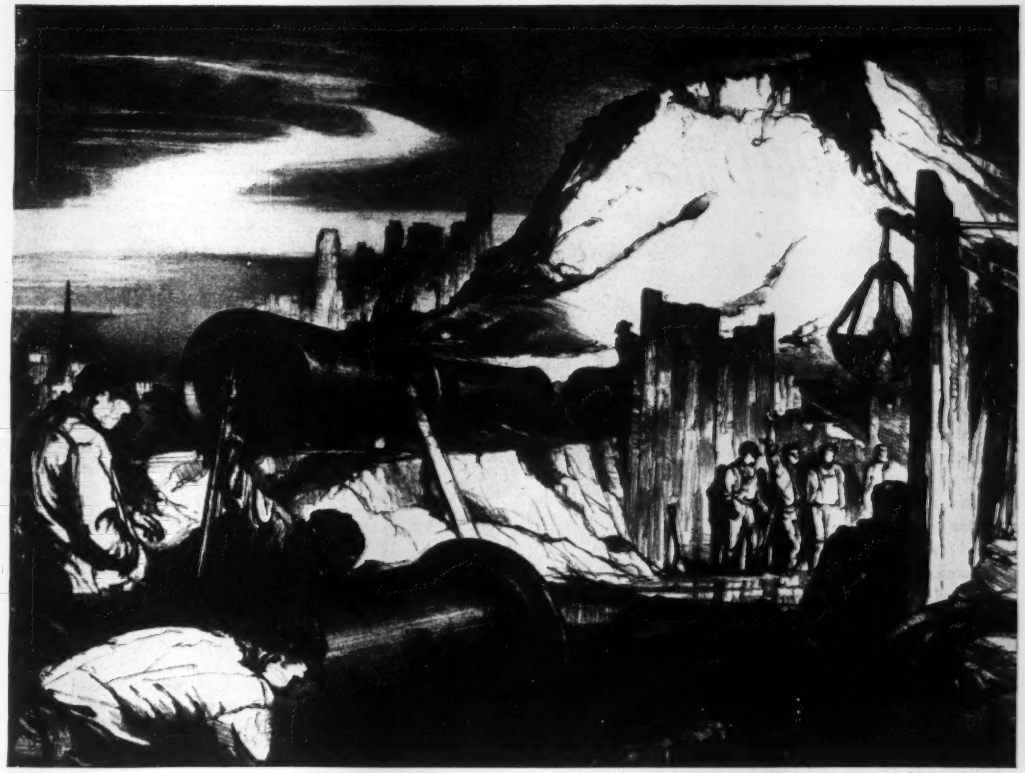
WHO operates in the field from six regional offices that blanket the globe. Not only does one of these regions exist without an environmental sanitation adviser, but one vast region of Africa has been administered from Geneva by just four people.

• **Top problem: personnel**—One of the biggest headaches WHO has is that of getting competent people—especially administrators. Sanitary engineers in the organization are at a premium. Professor Eliassen says there was evidenced at the recent assembly in Geneva a full appreciation of the importance of environmental sanitation and the need for sanitary engineers. Among WHO's 79 member nations (and 3 associate members) there are lands which do not have a solitary sanitary engineer even on the national level.

Where all the needed sanitary engineers are to come from is certainly a problem. The fellow who first said "sanitary engineering is America's gift to the world" may have had the best hint to its solution. The Rockefeller Foundation is sponsoring sanitary engineering curricula in European countries; Prof. Gordon Fair of Harvard has been active in this and other efforts of the Foundation.

WHO and the other agencies in the business of international health have evidence that a pretty full program against preventable diseases can be carried out for $2.50 per capita per year. But it takes people as well as money.

(*Continued on page 56*)



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INTERNATIONAL

• **Technical assistance**—WHO has just a piece of the job to be done on underdeveloped areas. To reiterate, public health and economic development are inseparable. It is not enough to make people healthy. Their country's economy must be made healthy at the same time so that the increased productive population can be put to productive work.

Puerto Rico is our most striking proof of the need for economic stimulus in a land with the population stimulus that comes with good health. And Puerto Rico's "operation bootstrap" (ENR Feb 15, 1951, p. 32) is just as striking an effort to meet the need, to complement public health advances with economic betterment.

As described in the ENR story referred to above, Puerto Rico's admirable effort is a school for engineers concerned with technical assistance. And the construction industry figures heavily in what is being done.

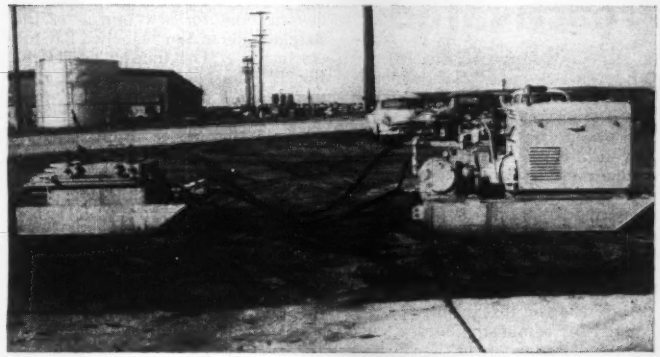
The same will prove true anywhere WHO (or anyone else) is successful in making sick people healthy. So that their regained energies can be used and their increased numbers fed, there will be required construction of power sources, irrigation works, transportation facilities and factories—to say nothing of the waterworks, sewerage, housing and hospitals necessary to the health job done.

There is work for engineers and contractors in building against disease. Then there is many times more work, in physical and in dollar volume, to be done in new construction markets that will develop as now-unhealthy nations are energized by health.

The way it works now is this: Congress appropriates "Point 4" appropriations. A portion of these go to general funds of UN's Technical Assistance Board; the rest go directly into bilateral plans between the U. S. and the other nation or territory involved. And of the portion the UN gets, a certain share goes to WHO for health work.

• **Cost is nominal**—Improvement of health and living conditions of people may be considered a moral obligation. But there remains the mundane question of dollar cost. How much?

WHO gets by on a total annual budget of about $9 million. Cost to each U. S. taxpayer is about two cents per year. With its regular funds it pays a staff of some 740 people. With funds from the Technical Assistance Board it employes another 160 or so. During 1951 WHO helped 101 countries and territories.



NEW VIBRATING SOIL COMPACTOR under study at the Navy's research center at Port Hueneme, Calif. as part of a joint Army-Navy research program to develop lighter equipment for consolidation of granular soils.

Soil compactor shows promise in test

A vibrating compactor for granular soils, now under study by the California Institute of Technology, has shown ability to produce densities close to maximum at depths of as much as 5 ft in sandy soils such as would be found on beaches used for temporary landing fields for airplanes.

The Caltech tests were made at the U. S. Naval-Civil Engineering Research and Evaluation Laboratories at Port Hueneme, Calif. They are an extension of studies begun at the Engineer Research and Development Laboratories of the Army at Ft. Belvoir, Va. Those earlier studies were aimed at developing a method for calculating the resonant frequency of a vibrating system in terms of the load, dimensions of the vibrating mechanism and the elastic constants of the soil under study.

The object of the earlier studies and the tests of Port Hueneme is to develop vibrating equipment less bulky than the compactors and super-compactors now in common use for airfield construction, which could be transported easily to remote regions. Such equipment also would be useful in normal airfield construction for consolidating the subbases for runways built over granular soils or on fills of granular material. The vibrator is not designed for use on plastic coils.

The compactor used in the Caltech studies with its power unit are shown in the accompanying photo. It was built by the Clyde Wood Manufacturing Co. at its North Hollywood shops.

The steel sled on which the vibrator is mounted has a base area of 15 sq ft, and the unit has a total weight of 6.6 tons. Two tons of this is in the form of plates which can be removed to vary the total load.

Vertical dynamic forces are produced by means of eccentric weights on two oppositely rotating shafts, so designed that the horizontal components of the centrifugal forces can be balanced out. The eccentric weights can be removed to permit several different dynamic forces to be developed.

At a speed of 720 rpm the vibrator develops a dynamic force of 7.5 tons.

Power is supplied hydraulically from the separate unit, also mounted on a flat-bottomed steel sled, which consists of an internal-combustion engine driving an oil pump.

Towed along a beach at a rate of 36 to 75 ft per min, the vibrator packed a shallow layer of sand to 92 to 95% of maximum density as determined by standard tests. When operated at one spot for 20 sec, the underlying sand was packed to a density of 95% to a depth of five feet.

These tests are being conducted under the direction of Frederick J. Converse, professor of soil mechanics at California Institute of Technology. Also participating are Professors George W. Housner, Aladar Hollander and R. R. Martel of Caltech; Prof. Adrian Pauw of Rice Institute; Prof. Patrick Quinlan of Cork University, and Prof. Walter Johnson of Pasadena City College. Project engineer is Delbert Hausmann.

Truck mixers to undergo extensive series of tests

What is believed to be the most comprehensive investigation of truck mixers ever made will be carried out this summer by the National Ready Mixed Concrete Association in cooperation with the Truck Mixer Manufacturers Bureau. The tests will be conducted by the association's staff at its research laboratory in the College of Engineering of the University of Maryland, according to Stanton Walker, director of engineering of the association.

The uniformity of concrete mixed at different rates and for different times in full-size truck mixers will be studied by means of tests for strength, consistency and proportions of ingredients. Studies of the effect of volume of batch, from considerably below rated capacity to considerably above, also will be made.

The work will be carried out over a period of about two months and is planned to involve tests of approximately 100 batches of concrete from standard truck mixers.

To facilitate control, a small aggregate batching plant is being erected on the premises of A. H. Smith Sand and Gravel Co., Branchville, Maryland, about 2½ miles from the university. Separate stockpiles of aggregate, with the coarse aggregate in two sizes, are being provided, with careful attention to reduction in segregation during the stockpiling. Bulk cement of the same brand will be used for all mixes.

As tentatively outlined, the investigation falls in three groups. The first group will comprise tests with a single horizontal axis truck mixer, involving a detailed study of the principal variables—volume of batch, mixing rate and mixing time.

In the second group similar tests will be made, but in somewhat less detail, with two types of high-discharge mixers.

In the third group of studies several different mixers provided by the manufacturer will be tested in the light of experiences gained in the first two groups.

A unique feature of the third phase of the investigation is that test results for individual mixers will be kept confidential even from the manufacturer himself. Results of the various tests will be published in such form as not to identify the make of mixer.

Quake board is reactivated

California has reactivated its Earthquake Safety Advisory Board at the request of State Architect Anson Boyd. Although the action came on the heels of the disastrous quake at Tehachapi early last week, plans for putting the board back into operation have been under consideration for months.

The board serves as advisor to the Division of Architecture in connection with technical and structural matters having to do with public school construction as imposed upon the Division of Architecture by the Field Act, better known as the Earthquake Safety Law. The board was created under authority of the California Administrative Code which was approved by the state legislature in 1933.

Director of Public Works Frank B. Durkee has appointed the following architects and engineers to serve on the board without pay:

Architects—Will G. Corlett, Oakland; John Lyon Reid, San Francisco; Stiles O. Clements and Herbert J. Powell of Los Angeles.

Structural engineers—Harold M. Engle and Harold B. Hammill of San Francisco; Stephenson B. Barnes and Oliver G. Brown of Los Angeles.

N. J. Highway Authority appointed by Governor

The three-man board of the New Jersey Highway Authority, recently appointed by Governor Alfred E. Driscoll to construct the Garden State Parkway in its entirety, took oaths of office this month at the State Highway Building in Trenton, N. J.

The simple ceremony was performed by Attorney General Theodore D. Parsons before an assemblage of state officials and guests.

The new authority members are: State Highway Commissioner Ransford J. Abbott, chairman; Bayard L. England of Linwood, Atlantic County, vice-chairman, and Orrie deNooyer of Garfield, Bergen County. Mr. England is president of the Atlantic City Electric Company, while Mr. deNooyer is vice-president in charge of purchases with the Forstmann Woolen Company, of Passaic.

Commissioner Abbott, who was named the head of the Highway Department by Governor Driscoll in July of 1950, will continue to serve in that capacity while performing his duties with the new authority.

The New Jersey Highway Authority was created by legislation enacted this year for the purpose of constructing the 165-mile Garden State Parkway from Bergen County to Cape May. The measure was urged by Governor Driscoll to enable speedy construction of the route as a "pay-as-you-ride" project to be constructed from the sale of revenue bonds.

The authority will make its headquarters during the period of construction in the State Highway Building in Trenton, according to Commissioner Abbott, who said that the organization required for administration and engineering would be held down to a minimum.

Ohio Turnpike post goes to C. M. Lovell

Charles W. Lovell of Louisville, Ky., an engineer for 18 years with the Portland Cement Association, has been appointed project engineer for the multi-million-dollar Ohio Turnpike.

Lovell will be in charge of construction of a section between Cleveland and Toledo. The new highway will be a continuation of the Pennsylvania Turnpike.

A civil engineering graduate of the University of Kentucky, Lovell joined the staff of the Kentucky State Highway Department after World War I. Fourteen years later he resigned to take the position of engineer with the Louisville Portland Cement Association. Holding this job for 18 years, he resigned to work on the turnpike.

Lovell has been a tireless and effective advocate of modern highway systems and has been a leading promoter of highway thinking in the State of Kentucky.

He has served as an official of the Kentucky Municipal League. He has also been chairman of the Citizens Planning Committee which aided state officials in mapping public improvements in 1948.

Lovell is a past president of the Kentucky Society of Professional Engineers, and currently is president of the Kentucky division of the ASCE.

Careers. . .

• **Appointed**—**Parker D. Trask**, University of California research engineer, has gone to Peru to conduct a three-month investigation of the possibilities for a large-scale water resources development there. During the past two years Trask has headed foundation investigations for new bridges of the state division of San Francisco Bay toll crossings . . .The transfer of **H. K. Booker** from North American Cyanamid Limited of Canada to Chemical Corporation in New York was announced this month. Both firms are units of American Cyanamid Co. In his new post, he will work on design and construction of ammonia plants throughout the world . . . **Col. Herbert Milwit** was appointed commanding officer of the Engineering Research & Development Laboratories at Ft. Belvoir, Va.

• **Elected**—The annual meeting of the New England Interstate Water Pollution Control Commission was attended by commissioners from Connecticut, Massachusetts, New Hampshire, Vermont, Rhode Island and New York at Vergennes, Vermont, this month. **Philip Shutler,** commissioner of the Vermont Water Conservation Board, was elected chairman of the board.

• **Honored**—**James T. McWilliam** received the Dr. L. I. Hewes Plaque, awarded by the Western Association of State Highway Officials, for his outstanding contribution to highway development. A check of $250 went with the plaque. McWilliam, an assistant highway engineer, developed mobile equipment, called a robot engineer, to make rapid surveys of roads . . . **Althe Thomas** and **John W. Stone,** engineers in the Irrigation Construction division of the Columbia Basin project, have won Superior Accomplishment Awards for their work at the 1,029,000-acre Bureau of Reclamation project in central Washington. The bureau credited Thomas with the economical administration of a series of major contracts while he was resident engineer in the Potholes area. In making the award to Stone, the bureau emphasized the safety record of contracts to which he has been assigned during his five years on the project.

• **Resigned**—**J. W. Arch Bollong** of Seattle, Wash., who became the first full-time traffic engineer in the United States with his appointment by Seattle in 1924, retired from that position last month and immediately opened an office as an independent traffic consultant . . . **Lyman Cox** has resigned as chairman of the Delaware Water Pollution Commission. Cox has been commission chairman since 1949.

OBITUARIES

Andrew Kerr, Sr., 77, structural engineer for Bethlehem Steel Corp. until his retirement in 1947, died recently. A member of the Engineers Society of Western Pennsylvania, Kerr was graduated from the University of Delaware in 1895.

Martin G. Basch, 71, chief engineer for the Easton (Pa.) Car and Construction Co. from 1916 until his retirement July 1, died July 14 in Easton. From 1905 to 1912 he was associated with the American Car and Foundry Export Co., New York City.

Charles M. Hazzard, civil engineer with the Philadelphia Electric Co. until his retirement in 1948, died July 14 in Philadelphia.

Nelson S. Talbott, 60, a vice president of the Maxon Construction Co., Dayton, Ohio, died in that city July 6. A retired Air Force brigadier general, Talbott will be posthumously awarded the Legion of Merit for his services during the Korean campaign.

George E. Kier, 59, general construction superintendent of Vermilya-Brown Co., Inc., New York City, died July 20.

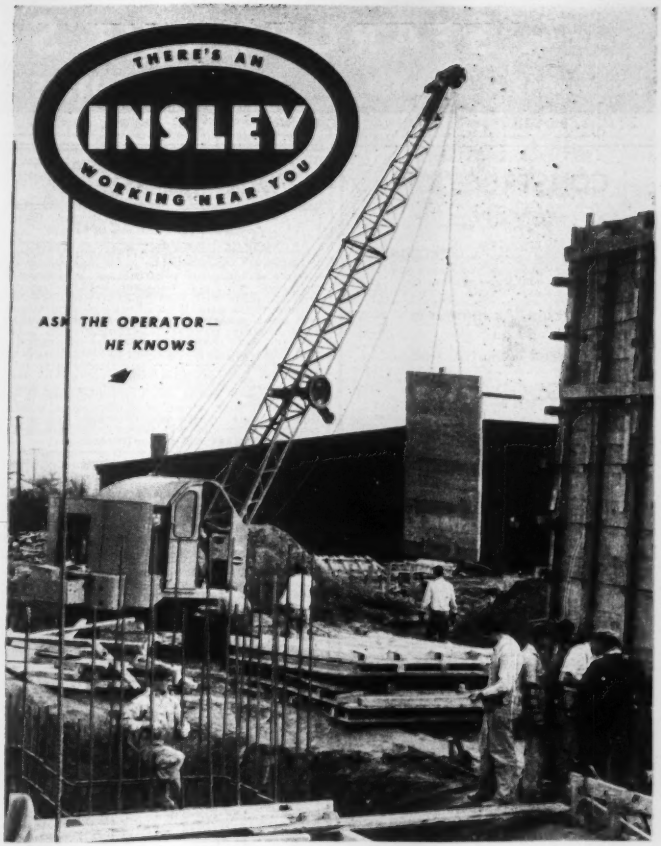
Edward F. Wilsey, 51, professor of civil engineering at Ohio University, died June 30 in Athens, Ohio. A graduate of the University of Iowa, Dr. Wilsey taught at the University of Illinois and Robert College, Istanbul, Turkey before joining the Ohio University staff. He was a member of Tau Beta Pi, Sigma Xi, the Society for Engineering Education, and the American Society of Civil Engineers.

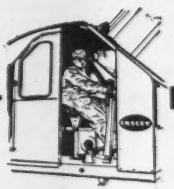
William McQueeney, Sr., 82, supervisor of public schools engineers in Washington D. C. until his retirement in 1941, died July 8 in Takoma Park, Md.

William F. Johnson, 48, superintendent of the R. B. Tyler Construction Co., Louisville, died July 16 in London, Ky. A former district engineer for the Kentucky Highway Department, he had been working at the atomic energy project near Paducah.

Victor J. Bonnat, 56, building contractor at Anaheim, Calif., since 1920, died July 6.

George W. Turney, president of the L. E. Shattuck Co., Manchester, N. H., died July 15.



The INSLEY operator  knows..

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BRIDGE DESIGNERS. Experienced and inexperienced men with a civil engineering degree wanted for a period of about 24 months in the office of a well known organization in Central Pennsylvania. State qualifications, age, salary requirements and availability in first letter. P-4655, Engineering News-Record.

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ENGINEERS EXPERIENCED in fields related to design and construction of limited access highways wanted for major mid-western project. In reply give detailed summary of experience, salary and when available. P-4848, Engineering News-Record.

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(Continued on the opposite page)

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Well established, medium size structural steel fabricating plant in middlewest desires a man as Assistant to the President with potential of General Manager. Must know structural steel and have both technical and business training, including accounting. Construction experience appropriate. Must be all-around man, administrator as well as engineer, and of a stable and even tempered nature. Age 35-40. Salary commensurate with qualifications. Replies held in confidence.

P-4911, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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Electrical
Instrument
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With degree in electrical engineering and at least five years safety experience. Forward Complete Resume to:

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a) CONSULTING ENGINEER: For Electrical Distribution Department. Experience in public utility companies for cities of more than 500,000 inhabitants is required as well as excellent recommendations.

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Please address inquiries to Dr. Ricardo Zuloaga, C.A. La Electricidad de Caracas, Marron a Pelota No. 8, Caracas, Venezuela.

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CONSTRUCTION SUPERINTENDENT

Experienced in Heavy and Industrial Building Construction
Location: Tidewater Virginia

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Project Engineer

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Roy E. Braden, Personnel Director
MICHAEL BAKER JR., INC.
Consulting Engineers & Constructors
Baker Building Rochester, Pa.

POSITIONS VACANT
(Continued from the opposite page)

WANTED CITY Engineer: To fill immediately a position in a city of 13,000 population located in the Pacific Northwest. Send qualifications, Experience and salary expected. P-4914, Engineering News-Record.

WANTED—RECENT CE graduate for Engineering Field Service Low Cost Road Construction. Highway experience desirable. Small Southeastern territory. Good opportunity National Organization. P-4903, Engineering News-Record.

WANTED—EXECUTIVE on public projects—$8000 per year. Knowledge of engineering or construction desirable. Location on Long Island, N. Y. P-4856, Engineering News-Record.

PRODUCTION OR industrial Engineer for Large concrete products manufacturing concern operating a large number of plants, manufacturing sewer, pressure and concrete pipe and other products in the Eastern half of the United States. Applicant should be graduate Civil Engineer with field construction experience, ability to handle men and manage a small production plant or field project. Excellent proposition with a bright future. Write P-4851, Engineering News-Record.

STRUCTURAL STEEL detailers and checkers. Permanent jobs for experienced men. All types of structures. Air-conditioned office. Bonus, group hospital and life insurance, vacations. Good working conditions. Write St. Joseph Structural Steel Company, Box 68, Station A, St. Joseph, Missouri.

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OPERATORS WANTED, for Bulldozers, Carryalls, La Plante Choate Motor Scrapers. Work located Eastern New York. Write complete qualifications to P-4918, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

WANTED: INSTRUCTOR of engineering drawing and descriptive geometry. Salary $4,000 for 9 months. Assistant professorship for qualified applicant. M.E. graduate preferred. Dept. of Eng. Drwg., University of North Dakota, Grand Forks, N. Dak.

SELLING OPPORTUNITY OFFERED

CONSTRUCTION MACHINERY Salesman for Chicago office. Advise age, experience, salary expected, etc. SW-4908, Engineering News-Record.

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GRADUATE CIVIL Engineer, age 29, married. 5 years New York City Contractors experience take-off, pricing, field supervision, industrial and speculative building. Heavy concrete experience. Desire relocation immediately, Texas, Southwest. PW-4842, Engineering News-Record.

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CONSTRUCTION SUPERINTENDENT concrete pipe manufacturer, considerable experience machine and cast methods. PW-4895, Engineering News-Record.

CONSTRUCTION EXECUTIVE, general manager, construction superintendent, estimator. 16 years heavy industrial construction, institutional and commercial. CE degree. Age 38. Presently employed, desires change. Salary bracket $12,000.00. Chicago, Detroit area, Eastern U. S. Would consider foreign assignment. PW-4932, Engineering News-Record.

GEN. SUPT.—Construction—48. 26 years experience heavy construction — industrial — dams — roads — bridges — airports — disposal plants — tunnels — water & sewage systems — have following of experienced men. PW-4924, Engineering News-Record.

CIVIL ENGINEER, graduate: 42 years general practice. Including: Water supply, Hydroelectric, industrial, power plants. PW-4869, Engineering News-Record.

CIVIL ENGINEER, graduate, licensed, age 36, married, 6 years professional experience in Civil and Sanitary Field. Duties include charge of field parties, design, specifications, reports, resident engineer, meeting with clients and public officials; supervision of draftsmen, engineer aids and junior engineers. PW-4696, Engineering News-Record.

CIVIL ENGINEER: Recently returned from Asia available for appointment. Supervising or contractor's engineer. Background experience of forty years engineer-construction field and office, including responsible foreign assignments on airports, drainage, highways, construction planning and municipal projects. Excellent credentials. Fluent Spanish. Reg. P.E. N.Y. PW-4809, Engineering News-Record.

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REGISTERED ENGINEER, 36, extensive experience water and sewerage treatment plant design. Can assume complete charge all phases design projects. Desire responsible position, with commensurate earnings. PW-4693, Engineering News-Record.

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DESIGN, DRAFTING, and Estimating work wanted from General Engineering Consultants and Engineering Construction Contractors in Highway, Sanitary Sewerage, Drainage, Waterworks, and Land Subdivision Projects. WW-4718, Engineering News-Record.

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New and Used Equipment News

Prepared Monthly by Ed Woolford at Camp Hill, Pa.

VOL. 1 NO. 4

AIR COMPRESSORS

Gardner-Denver 500 cu. ft. diesel, new condition.
Schramm 105 cubic foot gas powered compressor on 4 steel wheels.
Pennsylvania 12" x 10" class 3A single cylinder, 355 cubic foot P.D., flat belt driven 50 HP slip ring motor.
Worthington two-stage, water-cooled, vertical 250#, 80 CFM, new condition.
Paving breakers, jackhammers, wagon drills, tie tampers.

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4024 Cedarapids roll, rebuilt.
3018 Cedarapids roll, rebuilt.
36" x 14' apron feeder, rebuilt.
Cedarapids Rock-It plant with 2025 jaw, 3033 mill. New.
Cedarapids 1236 Model 8C plant, new.
4033 Cedarapids Hammermill, rebuilt.
1030 Good Roads. Reconditioned.
10x7 Allis-Chalmers Blake type jaw crusher.
#1 Cedarapids Kubit impact breaker.
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3' x 6' Kennedy Van Saun triple deck.
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80-ton, 2-compartment, 8'x18' storage bin with clamshell gates.
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Special bins to your specifications.
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New and rebuilt dump bodies.
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1½ KW to 125 KW, alternating and direct current gasoline and diesel powered.

SHOVELS—CRANES

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Brownhoist 1-yd. gas shovel & crane.
Link-Belt LS85 gas ¾ yard shovel.
P&H Model 150, ½-yd. crane.

SHOVEL & CRANE ATTACHMENTS

Lorain L-41 Chain Crowd Shovel Attachment. Rebuilt.
Lorain 40 Hi-Lift shovel attachment.
P&H 203 shovel attachment.
Chain crowd Lorain 30A shovel attachment.
Bucyrus-Erie 1½-yd. rock bucket.
McCaffrey Model 648 for 1¼ to 2-yd. crane.
McCaffrey Model 638 for ¾-yd. to 1-yd. crane.

Backhoe Buckets & Attachments

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Lorain 30 hoe attachment complete.
¾-yd. Lorain, 40, LBS #6105, 44" cutting width.
26" outside width solid bottom type LBS #4377, good condition.
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LIFTING MAGNETS

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1—36" ECM lifting magnet, rebuilt.

SHOVEL DIPPERS

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New Lima 1-yd. Amsco, LBS #2295.
Bucyrus-Erie 1¼-yd. gas air, LBS #3782, fair.
Lorain 75B, 1½-yd. manganese bucket, LBS #8538.
Lorain 75B, 1¼-yd. extended lip, 1¾-yd. LBS #2260.
Pettibone-Mulliken 2-yd. Lorain 82 or 820, manganese, LBS #5361.
Pettibone-Mulliken 2-yd. for 3500 Manitowoc LBS #5763.
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Corr formgrader, new 1944, rebuilt.

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1—TD9 International diesel with 1 yd. Loadover.

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Sanderson-Cyclone #44 well drill, new.
Bits—Stems—Bailers—Sockets—Etc.

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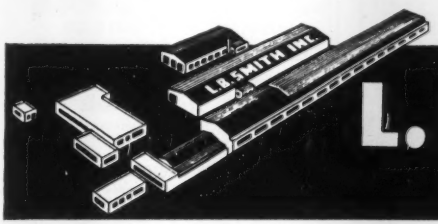

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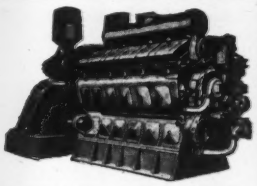

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500	General Motors	8-278A	750	720	100	General Motors	3-268A	150	1200
500	General Motors	8-567	720	720	100	Worthington	BB-5	150	600
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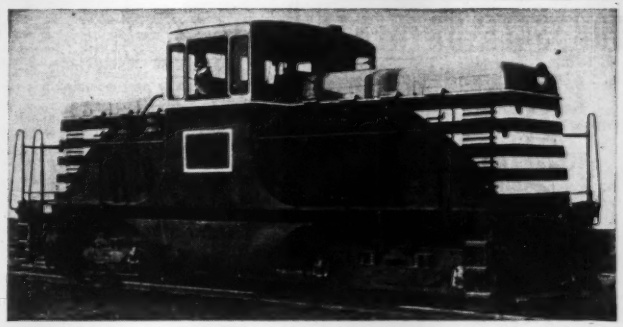

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Cement and aggregate hoppers with bucket type elevators
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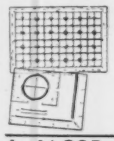

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70 Rolls
STEEL REINFORCING WIRE MESH
6x6x6x6 Gauge—5'x150'—$30.00 per Roll
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1 Bucyrus-Erie Shovel 15 B New 1948

Powered with 8 Cylinder Chrysler Industrial Motor with the following attachments:

35 ft. Crane Boom with W-Fair Leads

Back-Hoe Attachment—New

½ yd. Haiss Digging Bucket—Nearly New

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Rudamatic Tagline

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We have a continuing interest in the availability of all kinds and models of heavy earthmoving equipment due to the fact that our supply requirements change constantly. Currently we are in the market for CATERPILLAR D8's, 8-E 15 B diesel shovels, BUCKEYE 70's. Please send *complete* data on your offerings—include wholesale prices and whether condition represented may be certified by reliable inspection agencies.

We're SELLING. . . . 15—LETOURNEAU LS CARRYALLS
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5—OSGOOD, model 200 shovels
6—NORTHWEST 80D, drags & shovels
1—NORTHWEST 6, combination
1—NORTHWEST 25, combination

This equipment has been reconditioned in our overseas shops and will arrive in New York about mid-July. It will be priced to sell—will consider sales subject your inspection upon arrival.

CISCO Contractors International Supply Corporation
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SAVE UP TO 50%
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1—Track-type tractor with 4½ ft. dozer blades; 7-in. shoes, toe bar; weight 3,584 lbs.

For further information and prices write or phone C. E. Cameron, Engineering Dept., Warsaw 1500.

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All sizes 7000 tons
In stock for immediate shipment
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1951—Allis-Chalmers HD-20 W/Gar Wood Bulldozer.

L. M. KELLER & SON
133 N. Ridgeland Ave.
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With swingers, 8¼ x 10 Boiler Type with or without boilers Unused

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Phone 8-2565.

WANTED

WANTED TO BUY

5—D8 Caterpillar Tractors
3—D8 Caterpillar Bulldozers
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5—DW 20 Caterpillar Tractors & Scrapers
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2—¾ yd. Northwest Shovels
5—Euclid end dumps
5—Tournapulls
1—Complete modern paving outfit, including 34 E Paver, Spreader, Finishing Machine and Longitudinal Float both 12' & 24'. Cement Bin and Batch Bin.

Equipment must be approximately two years old or less. Will consider equipment of other makes than specified.

W-4780, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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For ½ yd. Badger backhoe. Model 1998

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AUBURN, MASS.

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1 Used 35'
BOOM AND FAIRLEADS
for Model 25 N. W. Machine.

Williams Construction Company
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EQUIPMENT WANTED
First Class Condition Only

Dragline, 2 to 3 yd.; large bulldozer; Ready-mix truck, 2 to 5 yds.; Pumpcrete outfit; Motor Grader; Bulk Cement Bin; Large Compressor; Equipment for Wellpoint System. Please furnish description and price.

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A COMPLETE STONE CRUSHER PLANT
Give details as to the capacity, make, and age of crushers, conveyors, screens and bins, etc. Also, please give location.

W-4928, Engineering News-Record
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One Cableway, 10 ton capacity
Including Carriage Lead Block American Hoist Model 180, 150 H.P. Squirrel Cage Motor, Reversible Control, Grids, Compressor, also 1,000 ft. 6 x 19 Hemp Center Improved Plow Steel Main Gut. All in excellent condition. May be inspected at Newport, Washington. Call or wire COLLECT **Donovan-James, Newport 275. Price open.**

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MODEL L-820, SERIAL #11805, 90 ft. BOOM New Cummins Diesel Engine—Complete With Fair Leads
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1—Link Belt Gantry Crane
2—1⅓ Cubic Yard Ransome Stationary Mixers
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One—Thomas—2 drum electric hoist, 220/440 volt, 60 cycle, with attached swinger. Line Pull 12,000#. In good condition. Location—Kansas City, Missouri. Full price $6,500 f.o.b. Kansas City, Missouri.

This unit may be seen by contacting Mr. T. H. Sandvik at Kansas City, Missouri, Benton 2309. Nite: Victor 9731.

For further information contact

Subgrade Engineering Corporation
2123 South 56th Street, Omaha, Nebraska
Phone Walnut 7796.
or, 8221 Atlantic Avenue, Bell, California,
Phone Logan 5-7421

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CRANES—DRAGLINES—CLAMSHELLS
Manitowoc 3500's, 60-ton capacity, fully equipped, and others.
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1—Bucyrus Erie Monaghan Dragline, Model 9-W, 5 years old. Excellent condition throughout.
All equipment first class condition. New or Nearly New.
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FS-4935, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

OFFICIAL PROPOSALS

Bids: August 14, 1952

Delaware Memorial Bridge

DELAWARE MEMORIAL BRIDGE
NOTICE TO BIDDERS
CONTRACT NO. 24
RIGHT OF WAY FENCE

Sealed proposals for construction of right of way fence along the approaches to the Delaware Memorial Bridge, will be received by the Delaware State Highway Department at the office of the Director, Delaware Crossing Division, Administration Building, Delaware Memorial Bridge, Delaware, until 11 o'clock Eastern Standard Time, (12 o'clock Eastern Daylight Saving Time), August 14, 1952, at which time and place said proposals will be publicly opened and read.

The work involves the following approximate principal quantities:—

Corner and Pull Posts	60
End Posts	17
Line Posts	1475
Farm-Field Fence	2470 lin. ft.
Relocating Chain-Link Fence	570 lin. ft.

Performance of this Contract shall begin promptly after execution of the Contract and shall be completed on or before December 1, 1952.

Monthly payments will be made for ninety (90) per cent of the construction completed each month.

Bidders must submit proposals upon forms provided by the Department.

Each proposal must be accompanied by an acceptable surety bond or certified check to the amount of at least ten (10) per cent of the total amount of the proposal.

The Contract will be awarded or proposals rejected within thirty (30) days from the date of opening proposals. The right is reserved to reject any or all bids.

One set of the Plans and two copies of the Specifications may be obtained from the Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, N. Y., after July 24, 1952, upon payment of $10.00.

Any prospective bidder who has made such a deposit may secure extra blueprint copies of the Plans upon payment of 50 cents per drawing and an extra copy of the Specifications upon payment of $2.50 per copy.

Plans and Specifications need not be returned to the Engineers, and the above payments will not be refunded.

The Plans and Specifications and other contract documents may be examined at the office of the Engineer, Howard, Needles, Tammen & Bergendoff, or at the Engineers' project office located north of and adjacent to the west abutment of the Delaware Memorial Bridge in the State of Delaware.

State Highway Department
by: J. Gordon Smith, Chairman
W. A. McWilliams, Director
Delaware Crossing Division
July 24, 1952

Bids: August 4, 1952

Erection and Construction of a 140,000 Gallon Steel Standpipe at Hampton Manor in the Town of East Greenbush, New York

NOTICE TO CONTRACTORS

Sealed bids for the construction and erection of a 140,000 gallon steel standpipe for Hampton Manor-Hillview Water District No. 4 in the Town of East Greenbush, Rensselaer County, New York will be received by George S. Fletcher, Town Clerk, at East Greenbush, New York until 7:45 P. M., Daylight Saving Time, on August 4, 1952, and bids will be opened by the Town Board at its regular meeting to be held on that day at 8:00 o'clock P. M., Daylight Saving Time.

Copies of the plans and specifications may be seen at the office of the Town Clerk and at the office of the engineers, Benjamin L. Smith & Associates, 11 North Pearl Street, Albany, New York and copies will be furnished upon a deposit of $5 per set. All non-bidders returning set or sets will be refunded $2 for each set.

The right is reserved to reject any and all proposals.

By order of the Town Board.
GEORGE S. FLETCHER
Town Clerk

OFFICIAL PROPOSALS

Bids: August 7, 1952

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, Albany, N. Y.—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time on Thursday, August 7, 1952 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects; Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		Wm. Robinson, District Engineer, 301 E. Water Street, Syracuse, N. Y.				
Cayuga....	O.T. 52-11P R.C. 52-78 S.T. 52-17	New York State Thruway Ontario Section, Sub. 4 & 5a (Montezuma-Port Byron); Port Byron-Conquest, S.H. 8087; Montezuma-Port Byron, S.H. 5610; Weedsport-Cato, SH686; Green Street Connection; Town Road & Marginal Road North of Port Byron	6.40 (2.55 Cross Rds.)	8" & 9" Cem. Conc. Pavt. 2 at 25', 25', 24' & 22' Wide = 7.73 mi. Asph. Conc. Ty. 1A, Opt. = 0.72 mi. Bit. Treated Gravel = 0.24 mi. Misc. Work = 0.26 mi; 4 Hy. Sep. Alpha I-Beam 320.33'; 216'; 220.33' & 211' 1 Br. 3 Sp. I-Beam 221.08'	$125,000 Plans $100	$2,209,000
Seneca	FASS52-12 FAS SH52-11	Mount Road, C.R. 104 Magee-Clyde, Pt. 1 Proj. S284(2)	3.85	Asp. Conc. Type 1A, Opt.	$17,000 Plans $10	$303,000
		DISTRICT No. 5				
		C. R. Waters, District Engineer, 65 Court Street, Buffalo, N. Y.				
Erie	R.C.52-50	Southwestern Boulevard, S.H. 9269	5.20	Asph. Conc. Type 1A, Opt.	$35,000 Plans $10	$613,000
		DISTRICT No. 7				
		C. C. Cassel, District Engineer, 444 Van Duzee Street, Watertown, N. Y.				
Lewis	FARC52-77	Copenhagen-Lowville, Pts. 1 & 2, S.H. 1020-87 Proj. F1043(2), F864(3)	8.38	Asp. Conc. Type 1A, Opt.	$22,000 Plans $10	$405,000
		DISTRICT No. 8				
		J. S. Bixby, District Engineer., Pleasant Valley Road, Poughkeepsie, N. Y.				
Ulster	RC52-87	Marlboro-Cedar Hill Cemetery, SH5176 Milton-Marlboro, SH5114	3.39	Asp. Conc. Type 1A, Opt.	$9,000 Plans $10	$166,000
Westchester	RC52-86	Yonkers-White Plains, SH5231	0.72	Storm Water Sewer	$4,000 Plans $10	69,000
		DISTRICT No. 10				
		J. J. Darcy, District Engineer, Montauk Highway at Little East Neck Road, Babylon, L. I.				
Bronx	FACBE 52-1	Cross Bronx Expressway, Cont. 9S Proj. UI-1084(16)	0.65 (Exp.) (1.72 Acc.)	9" Cem. Conc. Pavt. 2 @ 36' & Var. = 0.93 Mi. Sheet Asp. Pavt. = 1.23 Mi. Misc. Work = 0.19 Mi. Hy. Sep. 2 Sp. Rigid Frame 99.67' Hy. Sep. 2 Sp. Rigid Frame 103'	$262,000 Plans $100	4,756,000
Nassau	PSC 4671 7282	Elimination of Grade Crossing of Long Island R.R. with Massapequa-Glen Cove SH 9017	(R.R. 0.98) (Hy. 0.24)	9" Cem. Conc. Pavt. Var. Wid. = 0.24 Mi. R.R. Track Work = 0.98 Mi. R.R. Sep. 2 Plate Girders 58.89' R.R. Sep. Twin Plate Girders 93.07' & 93.86'	$61,000 Plans $25	$1,108,000
Suffolk	FARC52-81	Bridgehampton-Devon, Pt. 1 S.H. 1405 Proj. F-559(7)	1.85	Asp. Conc. Type 1A Opt.	$11,000 Plans $10	$190,000

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders".

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

OFFICIAL PROPOSALS

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3620) will be received at Albuquerque, New Mexico, until August 19, 1952, for furnishing labor and materials for: Channelization of the Rio Grande from Fish and Wildlife Refuge to San Marcial, Middle Rio Grande Project, New Mexico. Location: North of San Marcial, New Mexico. Principal items are: 2,500 acres clearing; 1,950,000 cu.yds. excavation; 11,800 cu. yds. riprap; 275 cu.yds. concrete; and other work. Completion time 450 days. For particulars, address Bureau of Reclamation, Albuquerque, New Mexico; or Building 53, Denver Federal Center, Denver, Colorado.

OFFICIAL PROPOSALS

Bids: September 3, 1952

Delaware River Joint Toll Bridge Commission

526 Broad Street Bank Building
Trenton 8, New Jersey
NOTICE TO CONTRACTORS

Sealed proposals for the construction of the eastern approaches for three bridges over the Delaware River, between Pennsylvania and new Jersey will be received by the Delaware River Joint Toll Bridge Commission at its office, 526 Broad Street Bank Building, Trenton 8, New Jersey, until eleven o'clock (11:00) A.M., E.D.S.T., on the 3rd day of September 1952, at which time and place all bids will be publicly opened and read aloud.

After July 28, 1952, Instructions to Bidders, form of Proposal, form of Contract, form of Performance Bond, Plans and Specifications may be examined at the office of the Commission, above address, and copies thereof obtained upon payment of $10.00 for each set, which amount is not returnable.

The names, location and approximate quantities of major items for the three approaches are as follows:

NEW JERSEY APPROACHES

Contract No. 105—Delaware Water Gap Bridge	
Earthwork	112,000 c.y.
Pipe Drains (6-in. to 30-in.)	6,200 l.f.
Inlets	31 units
Concrete	1,700 c.y.
Concrete Pavements	15,000 s.y.
Contract No. 205—Portland-Columbia Bridge	
Earthwork	166,000 c.y.
Pipe Drains (6-in. to 72-in.)	14,000 l.f.
Inlets and Manholes	61 units
Concrete	17,000 c.y.
Concrete Pavements	25,000 s.y.
Concrete Curb	11,000 l.f.
Topsoil, Seeding and Mulching	50,000 s.y.
Contract No. 305—Milford-Montague Bridge	
Earthwork	30,000 c.y.
Pipe Drains (6-in. to 48-in.)	1,600 l.f.
Stabilized Shoulders	6,000 s.y.
Bituminous Macadam Pavements	8,000 s.y.
Topsoil, Seeding and Mulching	15,000 s.y.

Proposals may be submitted for any one approach; for any two approaches, or for all three approaches.

Each Proposal must be accompanied by a certified check in the amount of not less than five (5) per cent of the amount of the Proposal. If the bidder submits Proposals for more than one contract, a single certified check in the amount of not less than five (5) per cent of the largest amount of work included in a Proposal will be sufficient.

All checks shall be made payable to the Delaware River Joint Toll Bridge Commission, which amounts shall be forfeited as liquidated damages if the bidder or bidders fail, within ten (10) consecutive calendar days after written notice that the bidder or bidders have been awarded the contract, to enter into a written contract with the Commission in accordance with the accepted bid, and to give a Performance Bond satisfactory to the Commission, equal to one-hundred per cent (100%) of total amount of contract.

The Commission reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the contract only to those experienced in this class of work, and to the bidder whose proposal is deemed by the Commission to be most advantageous to the public interest.

DELAWARE RIVER JOINT TOLL BRIDGE COMMISSION
Alexander R. Miller, Chairman

July 28, 1952

Bids: December 1, 1952

Wadi Tharthar Project

IRAQ GOVERNMENT — DEVELOPMENT BOARD
Samarra Barrage, Undersluices, Regulator and Subsidiary Works

1. Tenders are invited by the Development Board of the Government of Iraq for the construction of a barrage, undersluices, regulator and works in connection therewith at Samarra on the River Tigris.

2. The Contract Documents and Instructions as to tendering may be inspected on and after the 31st day of July, 1952, at any of the following places, namely:—

(a) The offices of the Development Board, Baghdad.
(b) The Iraqi Embassy, Washington, D. C., U. S. A.
(c) The Royal Iraqi Legation, Paris.
(d) The Royal Iraqi Legation, Brussels.
(e) The Royal Iraqi Legation, Rome.
(f) The offices of Messrs, Goode & Partners, 9, Victoria Street, London, S.W.1., England.

3. Firms desiring to tender may obtain copies of the Contract Documents between the 31st day of July, 1952 and the 30th day of September, 1952 (both days inclusive) from either the Development Board in Baghdad, or Messrs. Goode & Partners in London upon payment of Twenty-five Iraqi Dinars. One Iraqi Dinar is equivalent to one pound Sterling.

4. Tenders must be accompanied by a deposit of I.D. 25,000 (Twenty-five Thousand Iraqi Dinars) or the equivalent in pounds Sterling, to be made at the Rafidain Bank, Baghdad or at its London Agents, The Midland Bank, Overseas Branch, 122, Old Broad Street, London, E.C.2. Full detailed conditions as to this deposit may be ascertained from the "Instructions to Persons Tendering" attached to the Contract Documents.

5. Tenders must be submitted to the Development Board, Baghdad, and will be received up to noon on the 1st, December, 1952.

6. Particular attention is drawn to Article 23 of the Instructions to Persons Tendering, namely, that tenders will only be accepted from firms of Contractors who have previously executed works of a similar nature and magnitude.

Secretary-General.
Development Board.

Baghdad.

Bids: August 19, 1952

Intercepting Sewers and Appurtenances, Sewage Pumping Station and Sewage Treatment Plant for Northumberland Sewer Authority of Northumberland, Pennsylvania

Sealed proposals will be received by the Northumberland Sewer Authority, Northumberland County, Pennsylvania, at the Borough Building, Northumberland, Pennsylvania, until 8:00 p.m. Eastern Standard Time on the 19th day of August, 1952, for constructing a sewage treatment plant complete with appurtenances including a sewage pumping station and intercepting sewers. The work will be divided into four (4) contracts designated as follows:

CONTRACT NO. 1—General
CONTRACT NO. 2—Heating and Ventilating
CONTRACT NO. 3—Electrical
CONTRACT NO. 4—Plumbing

Proposals will be publicly opened and read at the time and place designated for said meeting.

Copies of plans, specifications and other contract documents are on file and open to public inspection and may be examined at the offices of Michael Baker, Jr., Inc., Baker Building, 115 Shields Street, Rochester, Pennsylvania or Russell S. Machmer, 212 Market Stret, Sunbury, Pennsylvania. Copies can be obtained at either of said offices upon payment of Twenty Dolars ($20.00) for each set. Any bidder, upon returning such set in good condition within ten days after the opening of bids, will be refunded his payment; and any non-bidder, upon returning such set, will be refunded Ten Dollars ($10.00). For documents not returned within the stated time, the entire amount will be forfeited.

The Northumberland Sewer Authority reserves the right to waive informalities in or to reject any or all bids.

Each bidder must deposit with his bid, security in the amount of at least five (5) percent of the amount of the bid in the form of a Bid Bond or Certified Check made payable to the Northumberland Sewer Authority.

No bidder may withdraw his bid within (30) days after the actual opening thereof.

The National Production Authority has assigned a DO T-8 rating and a T-8 allotment to this project.

Bids must be addressed to Mr. R. W. Eisenhower, Secretary, Northumberland Sewer Authority, Northumberland, Pennsylvania.

Northumberland Sewer Authority
R. W. Eisenhower, Secretary

Bids: August 14, 1952

Two 300 H.P. Steam Generating Units New York International Airport Proposal No. 868

THE PORT OF NEW YORK AUTHORITY

Sealed proposals for furnishing two 300 H.P. Steam Generating Units for New York International Airport, Jamaica South, N. Y., will be received at the office of the Director of Purchase of The Port of New York Authority, Room 1402, 111-8th Ave., New York 11, until 11:00 A.M., Thursday, August 14, 1952, at which time and place proposals will be opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, July 31, 1952.

Bids: August 25, 1952

THE PORT OF NEW YORK AUTHORITY
LINCOLN TUNNEL
THIRD TUBE
NEW YORK LAND SHAFT AND LAND SECTION NO. 1
CONTRACT LT-160.007

Sealed proposals for the construction of the New York Land Shaft and Land Section No. 1 for the Third Tube of the Lincoln Tunnel will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:00 A.M., Monday, August 25, 1952, at which time and place said proposals will be opened and read.

Contract documents may be seen on and after Wednesday, July 23, 1952, at the office of the Engineer of Materials, Room 1110, and copies will be furnished upon deposit of $100 per set. Deposit to be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt should then be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, July 21, 1952.

Construction of a School

Kan., Fort Leavenworth—SCHOOL—B.A. 8/7—Common School District No. 81, Fort Leavenworth Kansas. Plans deposit $50.00. Dan R. Sandford & Sons, 329 Westport Road, Kansas City, Missouri, archts.

Bids: August 6, 1952

WASHINGTON SUBURBAN SANITARY COMMISSION
CONTRACT NO. 1158-W
FURNISHING AND DELIVERING STANDARDIZED MECHANICAL JOINT CAST IRON WATER PIPE

Sealed proposals for furnishing and delivering ten-thousand (10,000) lineal feet of 6-inch and fifty-thousand (50,000) lineal feet of 8-inch Mechanical Joint Pipe, Class 150 unlined; twenty-thousand (20,000) lineal feet of 10-inch and twenty-thousand (20,000) lineal feet of 12-inch Mechanical Joint Pipe Class 150 lined will be received at the office of the Purchasing Agent, Room 3, of the Washington Suburban Sanitary Commission, 4017 Hamilton Street, Hyattsville, Maryland until Wednesday, August 6, 1952 at 10:30 A.M. at which time and place they will be publicly opened and read.

Specifications may be obtained from W. R. Douglas, Purchasing Agent of the Commission.

Raymond W. Bellamy, Chairman
L. S. Ray
J. Norman Ager
Commissioners

Attest
James B. Parkhill
Secretary-Treasurer

OFFICIAL PROPOSAL

RATE: $1.50 per line (or fraction) per insertion.
CLOSING DATE: 10:20 A.M. Friday for issue out following Thursday.
SEND COPY: Official Proposal Division, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

OFFICIAL PROPOSALS

Bids: August 18, 1952

Runway D and Associated Tramways

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
ELECTRICAL INSTALLATION
CONTRACT NYA-269.002

Sealed proposals for the electrical installation and the construction of a switch house for Runway D and associated taxiways at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:00 A.M., Monday, August 18, 1952, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials, Room 1110, and copies will be furnished upon deposit of $25 per set. Deposit to be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt should then be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, July 31, 1952

Bids: August 12, 1952

Hangar No. 6

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
PAVING AND UTILITIES
CONTRACT NYA-280.005

Sealed proposals for paving and utilities for Hangar No. 6 at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 2:30 P.M., Tuesday, August 12, 1952, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials, Room 1110, and copies will be furnished upon deposit of $25 per set. Deposit to be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt should then be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, July 31, 1952

Bids: November 5, 1952

Auckland Metropolitan Drainage Board

SEWERS AND OTHER WORKS IN TUNNEL

TENDERS are invited, from firms having suitable experience, for construction of a main sewer 6 ft 9 in. horseshoe section in tunnel, length about 17,000 feet; a main sewer, partly 5 ft 6 in. by 3 ft 3 in. in tunnel, length about 15,000 feet; an access roadway about 3,000 feet long, including tunnel section about 1100 feet; and incidental works.

Tender drawings and documents will be available August 6th. Copies will be forwarded (by air mail to overseas firms) on application, accompanied by cheque or bankers order payable in Auckland amounting to £15 N.Z. for each set of documents required. Deposits will be refunded on receipt of bona fide tender or on return of documents. Deposit required with tender £7,500 N.Z. and will be refunded to unsuccessful tenderers.

Tenders close at Board's Offices, P.O. Box 208, Auckland, New Zealand, at Noon, N.Z. time, on 5th November, 1952.

Bids: August 19, 1952
CONTRACT 645
CONCRETE SUBSTRUCTURES AND PIPE LINES FOR THE WESTCHESTER COUNTY, N. Y.—SANITARY SEWER DISTRICT OF NEW ROCHELLE SEWAGE TREATMENT PLANT

Sealed bids or proposals will be received in Room 508, County Office Building, White Plains, New York, until 10:00 A.M., Eastern Daylight Saving Time, August 19, 1952, immediately after which the bids received will be publicly opened and read aloud in Room 808 of the Said Building.

The work will include the following principal bid items:

20,500 cu. yds. Unclassified Excavation in Structures and Grading of Site.
380 lin. ft. Submarine Inverted Pipe Siphons.
9,600 cu. yds. Concrete A.
2,000 cu. yds. Concrete B.
670 tons of Reinforcing Steel.

Miscellaneous items: Detritor and Grit Washing Equipment, Comminutors, Sluice Gates, Gate Valves, Rock Embankment Wall for Harbor Protection, Fence, and other Miscellaneous Minor Items.

The Contract Documents may be seen at Room 508, County Office Building, White Plains, New York, where plans, specifications and standard proposals for the work proposed may be procured upon a cash deposit of $40.00, which deposit will be refunded to bidders only, provided plans and specifications are returned in good condition within thirty (30) days after the award of the contract or rejection of bids.

Extra sets of plans or copies of individual sheets may be obtained at the cost to the County. For extra sets of plans or to non-bidders, no refund will be made.

All bids must be accompanied by a certified check of $100,000, payable to the County of Westchester, N. Y.

The County reserves the right to waive any informalities in the bids, or to reject any and all bids. No bidder may withdraw his bid within forty-five (45) days after the actual date of the opening thereof.

COUNTY OF WESTCHESTER
Department of Public Works
By: James C. Harding
Commissioner

Bids: August 14, 1952

Installing Pipe in Mohawk Bay Crossing Supply Main

ADDITIONAL WATER SUPPLY
FOR LATHAM WATER DISTRICT
COLONIE, NEW YORK

Sealed bids will be received by the Town Board of the Town of Colonie, New York on the 14th day of August 1952 until 7:30 P.M., Eastern Daylight Saving Time for unloading, hauling and installing a 24" Flexible Joint Cast Iron Pipe across a Bay of the Mohawk River in the route of the supply main, as part of the supply main for additional water supply for the Latham Water District, Albany County, New York.

The information for bidders, form of bid, form of contract, plans, specifications and performance bond may be examined at the office of the Town Clerk, Town Hall, Newtonville, New York and at the office of Keis and Holroyd, 257 Broadway, Troy, New York. Copies thereof may be obtained at the office of Keis and Holroyd upon payment of $25.00 for each set. Any bidder upon returning such set promptly and in good condition will be refunded his payment, and any non-bidder upon so returning such set within 30 days will be refunded $20.00.

The Town Board of the Town of Colonie, New York reserves the right to waive any informalities in or to reject any or all bids. A certified check made payable to the order of the Town of Colonie in the amount of 5% of the bid must be deposited by each bidder with the bid as a guarantee that in case the contract is awarded to him that he will, within 5 days thereafter, execute such contract and furnish a satisfactory performance bond. On failure to do so, he shall forfeit the deposit as liquidated damages and acceptance of the bid will be contingent upon the fulfillment of this requirement by the bidder.

The successful bidder will be required to furnish a performance bond satisfactory to the Town of Colonie, New York in the amount of the contract and having as surety thereon, such surety company or companies as are acceptable to the Town of Colonie, New York.

The work will be let in one contract with the Cast Iron Pipe, Specials and Valves being furnished by others.

No bidder may withdraw his bid within 30 days after the date set for the opening thereof. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof.

Signed: William K. Sanford,
Supervisor

Keis and Holroyd
Consulting Engineers
Troy, New York
Dated: July 25th, 1952

Bids: October 1, 1952

Construction of Super-Structure

DETROIT-WAYNE JOINT BUILDING AUTHORITY

The Detroit-Wayne Joint Building Authority will receive sealed proposals for Construction of Superstructure for the City-County Building, to be located on the east side of Woodward Avenue north of Jefferson Avenue in Detroit, Michigan, until 2:00 o'clock P.M., October 1, 1952. All proposals should be endorsed "Proposal for Contract CC-4 Construction of Superstructure, City-County Building", and addressed to the Detroit-Wayne Joint Building Authority, 404 County Building, Detroit 26, Michigan. Bids will be publicly opened and read aloud at the time above stated, in Room 422, County Building. Any proposals received after the above-mentioned time will be returned to the bidder unopened.

The accepted bidders will be required to furnish satisfactory performance and labor and material bonds.

The work consists of constructing the complete superstructure of the subfloors of City-County Building, including the 20 story Courts unit and the 14 story Office unit with its link structure of the same height connecting to the Court unit, also Symbol and all appurtenant structures above and outside the limits of the substructure work, and consisting in general of all work above the underside of the basement floors inside building line of superstructure, above top of caisson caps of Symbol, and outside substructures limits for ramp and service court areas, etc., also all finish work in the concrete shell of the extended basement (that part outside the superstructure building line) constructed under substructure contract, and all other work as indicated on the drawings and as defined more fully in the specifications.

Separate contracts have been let for
(1) Caisson and Substructure Work
(2) Structural Steel Framing, and
(3) Cellular Steel Sub-floors.

The contract documents, including Notice to Bidders, Form of Proposal, Form of Contract Agreement, Drawings and Specifications, may be examined and obtained at the offices of the Architects and Engineers, Harley, Ellington and Day, Inc., 153 East Elizabeth Street, Detroit 1, Michigan, during business hours. A deposit, consisting of cash or a certified check made out to the Architect and Engineers in the following amount, is required for each set of plans and specifications, to be refunded if plans and specifications are returned without marks or other mutilations within 10 days after receipt of bids:

For complete Contract Documents All trades	$200.00 per set
For Architectural Trades only	$125.00 per set
For Structural Trades only	$85.00 per set
For Mechanical Trades only	$100.00 per set
For Electrical Trade only	$85.00 per set
For Contract Documents without drawings	$75.00 per set

Proposals must be submitted on forms furnished by the Architects and Engineers, and each must be accompanied by a certified check or a satisfactory bidder's bond in an amount not less than 5% of the total bid price as security for the acceptance of the Contract.

After the receipt of bids, no proposal may be withdrawn for at least 30 days, within which time the successful bidder will be notified by the Authority through the Architects of the tentative approval of his bid by the Authority subject to the following condition: an agreement awarding such contract to the successful bidder shall be executed within 60 days thereafter provided that bonds have been sold to finance the Contract. It is agreed and understood that the period for executing such agreement may be extended by mutual agreement between the successful bidder and the Authority.

The Detroit-Wayne Joint Building Authority reserves the right to waive informality in any bid, or to accept any bid, or to reject any or all bids, should it be deemed for its best interests so to do.

DETROIT-WAYNE JOINT BUILDING AUTHORITY
ALBERT E. COBO, Chairman
CHARLES G. OAKMAN, Commissioner
JESSE ZIEGLER, Commissioner

MAKE YOUR

$$$$

HAVE MORE

¢¢¢¢

The cents saved on every dollar spent may provide enough additional dollars to pay for additional work.

Advertising contracts-to-be-let for construction work, materials or equipment in the OFFICIAL PROPOSALS COLUMNS of ENGINEERING NEWS-RECORD provides intensive local, regional and national coverage of possible bidders and the opportunity to let contracts at minimum costs consistent with good work, THROUGH MORE BIDS.

Official Proposals Division

ENGINEERING NEWS-RECORD

330 W. 42nd St.

NEW YORK 18, N. Y.

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OFFICIAL PROPOSALS

Bids: August 14, 1952

Soil explorations and foundation investigations at various sites on the New England thruway, post road to Larchmont, towns of New Rochelle and Larchmont, city of New Rochelle, Westchester county, which constitutes contract No. Spec. SM-40.

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Eastern Daylight Saving Time, on August 14, 1952 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for

Maps, plans and specifications may be examined and obtained at following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, N. Y.

(b) J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.

(c) Charles Schaefer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $16,440.00.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $822.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

B. D. TALLAMY
Superintendent of Public Works

Bids: August 14, 1952

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 A.M., Eastern Daylight Saving Time, on August 14, 1952 by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON THE NEW YORK STATE THRUWAY, HUDSON SECTION, SUBDIVISION 7, SUFFERN TO HARRIMAN, CITY OF SUFFERN AND TOWNSHIP OR RAMAPO, ROCKLAND COUNTY, WHICH CONSTITUTES CONTRACT NO. SPEC. SM-39.

Maps, plans and specifications may be examined and obtained at following offices:

(a) Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, N. Y.

(b) J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.

(c) Charles Schaefer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

The Engineer's estimate of cost for this work is $29,725.00.

Proposal for this contract must be submitted in a separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $1,487.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instruction to Bidders".

The right is reserved to reject any or all bids.

B. D. TALLAMY
Superintendent of Public Works

Defense program 54% completed now

The defense program has passed the half-way mark. The Defense Production Administration last week estimated that as of June 30, facilities worth $9.5 billion—54% of the planned program—were in place.

DPA's detailed study of the first quarter—on which the second quarter estimate was based—showed that as of Mar. 31, 580 projects with an estimated cost of $2 billion, had been issued Certificates of Necessity but had not started construction.

• **Delays reported**—The amount of work accomplished during the first quarter was 11% below what reporting certificate holders had previously estimated. DPA reported first quarter delays generally were caused by shortages of construction materials, production machinery, and by bad weather.

Most rapid rate of progress during the second quarter was scheduled for blast furnaces, copper ores, aluminum, chemical programs, iron ores, aircraft plants, petroleum refining, coke ovens, machinery, and petroleum pipelines, according to DPA.

Facilities expansion covered by Certificates of Necessity issued through Mar. 31, 1952, is scheduled to reach virtual completion by the end of 1954, DPA said.

The major portion—91%—is scheduled to be finished by the end of 1953, and 56% by the end of 1952.

By the end of 1953 production facilities are scheduled to be finished for alkalies and chlorine, synthetic fibers, pharmaceutical products, compressed and liquefied gases, hydraulic cement, welded and heavy riveted pipe, railroad line-haul operating equipment, petroleum pipelines, and natural gas transmission and distribution.

• **Not started yet**—Largest dollar value of projects not started at the end of the first quarter was in steel works and rolling mills, followed by projects for industrial inorganic chemicals.

Sixty-four percent of the total cost of this expansion goes for machinery and equipment, DPA estimated. Construction costs comprise 32% and land and overhead makes up the balance.

DISTRIBUTION OF TOTAL REPORTED COST BY CONSTRUCTION AND EQUIPMENT (Major Industries)

Industry	Percentage cost for		
	Construction	Equipment	Other
Over-all average	**32.2**	64.0	3.8
Pulp Mills	**23.9**	68.7	7.4
Paper & Board Mills	**19.7**	71.6	8.7
Alkalies & Chlorine	**13.8**	81.7	4.5
Industrial Inorganic Chemicals	**28.4**	65.8	5.8
Synthetic Fibers	**24.3**	61.8	3.9
Industrial Organic Chemicals	**20.8**	75.5	3.7
Compressed & Liquefied Gases	**29.7**	64.4	5.9
Pharmaceutical Preparations	**22.8**	74.2	3.0
By-product Coke Ovens	**65.5**	33.6	0.9
Hydraulic Cement	**34.7**	60.4	4.9
Blast Furnaces	**53.6**	44.2	2.2
Steel Works & Rolling Mills	**45.3**	54.0	0.7
Primary Refining—Aluminum	**32.8**	61.4	5.8
Welded and Heavy Riveted Pipe	**39.2**	55.9	4.9
Machinery, Except Electrical	**39.0**	58.9	2.1
Electrical Machinery	**51.0**	46.8	3.2
Railroad, Line-haul Operating	**5.9**	94.0	0.1
Great Lakes Transportation	**17.1**	82.9	0
Electric Light & Power	**23.1**	68.1	8.8
Iron Ores	**47.2**	47.9	4.9
Copper Ores	**64.3**	33.6	2.1
Electrometallurgical Products	**27.3**	69.1	3.6
Petroleum Pipelines	**74.7**	23.1	2.2
Natural Gas Trans. & Dist.	**25.6**	67.5	6.9
Natural Gasoline	**29.0**	64.3	6.7
All Other	**35.2**	61.3	3.5

Federal-aid airports to get $19 million in '53

A $19-million federal-aid airport program for 1953 was announced Tuesday of this week. No funds are provided in the program for new airport construction—all allocations are for improvement of existing facilities at 169 airports.

The largest share of the $19 million will go into contract construction. But part of it will cover a variety of miscellaneous work.

Two cases where the funds are definitely construction money are the Albany, New York, Municipal Airport, and the Cleveland Municipal Airport. At Albany, $350,000 of federal money plus a matching $350,000 from local or state sponsor will go into construction of a terminal building. In Cleveland, a total of $650,000 will be used to build a new unit and tower for the terminal building.

The money for work on these and 165 other projects will come from a federal fund of almost $10 million plus a matching $9 million from local or state sponsors.

On June 30, 1952, the end of the sixth year of the federal-aid airport program, a total of $183 million in federal funds has been programmed.

OUTDOOR ADVERTISING BUSINESS is a good customer for the construction industry. Signs call for big quantities of materials annually.

Who buys construction II

Signs spell construction business

Outdoor advertising is a restless, flexible industry, constructionwise, driving constantly to carry its customers' messages to the greatest number of consumers.

A closemouthed industry when it comes to facts and figures, it divides itself into three parts: The standardized outdoor advertisers (organized as the Outdoor Advertising Association of America, Inc.); specialists, known as the Roadway Business Association, who work along highways; and the highly select small group who build the great, flashing "spectaculars" that distinguish New York's Times Square and downtown sections of other major cities. Additionally, there are what the trade calls "snipes"—who paint signs on fences, rocks, barricades and the like.

Nearest you can come to what the industry itself spends each year is something around $40 million on construction and maintenance of the huge investment represented by the signs themselves.

• **Big chunk**—Probably the biggest individual chunk of this money is spent by members of OAAA—whose Chicago headquarters estimates outlay at about $20 million during a normal year.

During a year, this part of the industry will use 21,000 tons of structural steel and 33.4 million bf of lumber just to maintain existing structures in neat order, and in the most favorable locations. In the same period it will use 1.5 million gallons of paint for both painted bulletins and poster panels.

Paint consumption for the past year is divided about as follows: Poster backing (green), 545,000 gal; poster trim (green), 220,000 gal; blocking-out (white), 210,000 gal; reducer, 136,000 gal varnish (bulletin protection), 87,000 gal; border trim (white), 35,000 gal; and 20 basic bulletin colors, 280,000 gal.

• **Big electric consumer**—The outdoor advertising industry also consumes a lot of electricity in the illumination of its bulletins and posters. This figure is placed at 100.25 million kwh for the past 12 months. Lighting materials placed in operation during this period include: 658,000 electric lamps; 30,000 reflectors; 8,500 transformers; and an equal number of time switches.

The industry uses 4 million lb of paste in a year, and about 1.1 million lb of calcium chloride in the process of manufacturing paste. The industry could also use 890,000 lb of aluminum per year, and 610,000 lb of stainless steel, if it could get them.

Currently the industry is operating about 275,000 poster panels and 35,000 painted bulletins. It would erect more poster panels using stainless steel molding on galvanized steel backing, if those materials were more plentiful.

This type of panel proved very popular with advertisers when it was first introduced shortly after the end of World War II. About 15,000 sets were erected before restrictions on stainless steel virtually stopped their fabrication.

• **Cantilever panels**—One significant trend in outdoor advertising is toward cantilever-type construction of panels, rather than the ubiquitous A-frame type. Supports for the panels are wooden poles, specially fabricated metal posts, tubular steel posts, wide-flange steel beams, channels or timber posts. In general the supporting members of a cantilever-type poster panel are set in bored holes, depending on a depth of embedment of 5 to 9 ft to provide resistance to overturning by wind. Minimum design wind-pressures range from 15 to 30 psf, depending on city building code requirements, and the geographical location of the installation.

One reason for cantilever construction is obvious. It permits the erection of poster panels and painted bulletin structures in confined areas—a most vital factor in congested areas.

Another trend in poster panel and bulletin construction is to get them higher in the air. This is particularly evident in rapidly-growing urban areas where the advertising messages must be high enough to clear parked cars, and above existing and proposed structures such as filling stations, restaurants, etc. to be easily read.

Headquarters of the Outdoor Advertising Association of America, Inc.—with a membership of some 700 firms engaged in designing, erecting and maintaining outdoor advertising signs—is located in Chicago. Karl L. Chaster, Jr., is general manager, and E. E. Kinney, manager of the engineering division.

The association sponsors considerable research on its industry's problems, under direction of its engineering department. This includes depth of embedment of cantilever supports; the proper shape factors and wind pressure coefficients on poster panels; lateral pressure of earth loads; and stability of soils. Results of these research projects are made available to the association's members.

• **Spectaculars**—When you discuss spectaculars, (although they are in-

What's the capacity of this block?

If you don't know.. don't use it!

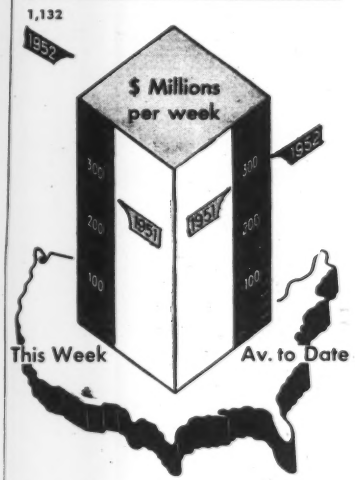
There's no place for guess-work in wire-rope lifting. Imagine the damage and expense involved if a hook straightened or a pin sheared, and this car suddenly dropped! And there's no guess-work to it when you're using American CROSBY Wire Rope blocks. Each American CROSBY block is LOAD-RATED—safe working capacity embossed in the side plate. That means *lifetime* protection . . . assurance of terrific strength throughout the block . . . extra-thick side plates, over-size pins and axles, sturdy, drop-forged hooks and heavy stiffening straps. Buy American CROSBY Wire Rope blocks, in sealed cartons, from your distributor or supply house. Made by the makers of genuine CROSBY Clips . . . American Hoist and Derrick Company, St. Paul 1, Minnesota.

2304

American CROSBY Load-Rated! WIRE ROPE BLOCKS

cluded in the total figures for materials included above) you're talking of something special. Construction and conception of them ranges from the civil engineering and construction problems involved to the higher reaches of electronics, art and the selling of ideas.

These signs range from fairly simple billboards on which are placed (in bas-relief) certain figures, to billboards with some animation (wheels spinning, figures moving, figures blowing smoke-rings, for instance) to some of the enormously complicated, multi-colored, flashing, animated signs such as those in New York.



Activity This Week

As reported to ENR (in million of dollars)

Contracts by type of work

	This Week	Cumulative 31 wks. 1952	Cumulative 31 wks. 1951	% chge
Waterworks	$4.2	$139.3	$135.5	+3
Sewerage	5.0	165.4	190.7	−13
Bridges	8.4	237.5	196.1	+21
Highways	29.9	929.0	704.2	+32
Earthwork, waterways	10.5	324.5	336.4	−4
Buildings:				
Public	945.5	2,141.7	1,416.8	+51
Housg., pub.	10.1	484.0	534.6	−9
Housg., priv.	50.9	1,836.4	1,187.5	+55
Commercial	8.7	373.6	413.0	−10
Industrial	25.5	1,657.4	2,651.8	−37
Unclassified	33.2	804.4	1,162.5	−31
Total	**$1,131.6**	**$9,093.2**	**$8,929.1**	**+2**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR indexes		Base Year = 100 1913	1926	1949
Constr. cost	July	570.65	274.31	119.63
	June	561.69	270.00	117.75
Bldg. cost	July	414.46	224.04	117.81
	June	412.50	222.98	117.26
Volume	June	543	221	157

UNIT PRICES

Runway and lighting for county airport, Mississippi

Let in two parts, the contract for the improvements at the Columbus-Lowndes County Airport in Mississippi brought close bidding. The successful bid for the general work was only 1% below the second bid and 6% below the high bid; the two bidders for the electrical work were within 3% of each other.

Grading, draining, fencing, turfing and paving a 4,000 x 100-ft. runway with parallel taxiway are included in the general contract. The electrical work includes building wiring, elevated marker lights and underground cable. The tower for the 51-in. beacon is to be furnished by the owner.

Work is under the supervision of Leland B. Cook, consulting engineers, of Tupelo. Both contracts began July 15th; the general must be complete in 120 working days and the electrical, 60 working days.

Bidders include:

1C Phillips Conc. Products, Columbus, Miss.	$185,038
2 Memphis Stone & Gravel Co., Memphis, Tenn.	186,832
3 Columbus Constr. Co., Columbus, Miss.	196,872

General contract

Bids: 6-23-52 Items	Unit	Quantity	Unit Prices 1 C	2
Clearing	ac	86.3	$100.00	$105.00
Clearing & grubbing	ac	16.3	150.00	145.00
Exc, unclassified	cy	55,408	0.38	0.39
Ex str R.C. culv pipe, 21"	lf	850	5.00	5.00
24"	lf	750	7.00	6.50
Std str R.C. culv pipe, 42"	lf	64	12.00	12.50
Bit ctd C.M. culv pipe, 8"	lf	50	2.00	1.75
Conc inlets, one-grate	ea	2	200.00	225.00
two-grate	ea	1	250.00	245.00
Concrete headways	cy	2.9	100.00	100.00
Aggregate base course	cy	17,242	2.40	2.43
Bituminous prime coat	gal	29,644	0.18	0.18
Bit material for mat	gal	28,734	0.18	0.17
Keystone agg for mat	t	1,796	7.40	7.20
Bit tack coat	gal	17,184	0.20	0.22
A sph limestone surf crse	t	3,492	12.50	13.00
Reinf conc pavement, 6"	sy	4,444	4.00	4.00
Concrete pavement, 4"	sy	52	3.00	3.00
Electrical duct, 2-way	lf	294	3.00	2.50
3-way	lf	50	4.50	3.20
Fence, class B	lf	16,720	0.30	0.29
Driveway gates, class B	ea	2	50.00	42.00
Fence, chain-link	lf	327	3.00	2.80
Walkway gate, chain-link	ea	1	110.00	80.00
Driveway gates, chain-link	ea	3	180.00	180.00
Fertilizing and seeding	ac	39	120.00	120.00
Mowing	ac	39	6.00	6.50
Refertilizing	ac	39	20.00	17.00
Repairing	cy	300	1.50	1.40

1C Ed Doughty Electric Co., Columbus, Miss.	$12,293
2 Doughty Electric Co., Inc., Columbus, Miss.	12,673

Electrical contract

Bids: 6-23-52 Items	Unit	Quantity	Unit Prices 1 C	2
Rotating beacon, 36"	ea	1	$2,200	$1,985
Beacon tower, 51" (instl)	ea	1	790	350
Wind cone, 12"	ea	1	1,000	1,025
Bldg wiring & regulator	ls	1	1,300	1,276
Elv marker lights, clear	ea	40	$80.00	$80.00
green	ea	12	82.00	82.00
Underground cable, #10 std	lf	9,500	0.25	0.35
#8, std	lf	1,200	0.30	0.38
#8, bare copper	lf	1,200	0.07	0.08

Highway relocation, Kansas

The final gap in a direct east-west route in Kansas nears completion with the start of work this month on the relocation of U. S. 40 to by-pass Ft. Riley. Concrete pavement, 9-in. uniform and 24-ft wide is to be laid on a 4-in. granular subbase, 26-ft wide. Creeper truck lanes, the first in Kansas, are provided on the long grades to facilitate traffic movement.

Skilled labor on the project will be paid $1.75 per hour; semi-skilled, $1.50; and common, $1.25.

The project must be complete in 110 working days. Don J. Christensen, of Junction City, is the resident engineer; C. Frank Virr, of Salina, the division engineer.

Bidders include:

1C Koss Const. Co., Pauline, Kansas	$1,282,568
2 Bushman Constr. Co., St. Joe, Missouri	1,292,970
6 S. J. Groves & Sons, Co., Minneapolis	1,661,472

Bids: 5-2-52 Items	Unit	Quantity	Unit Prices 1 C	2
Exc, common	cy	57,400	$0.35	$0.40
Compact earthwork, typ B	cy	27,030	0.10	0.10
Water	M gal	1	2.00	2.00
Granular sub-base, 6"	sy	13,579	0.65	0.65
4"	sy	252,680	0.42	0.45
Conc pavem't, 9" uniform	sy	252,958	4.08	4.05
Stl plate grd fence	lf	10,950	1.50	1.00
Guide posts	ea	51	4.00	10.00
Edge curb, 3"	lf	5,513	0.20	0.20
Gutters	lf	886	2.50	4.00
Flume inlets	ea	10	200.00	150.00
Slope drains	lf	412	4.00	5.00
Pipe underdr, type A or G	lf	3,826	4.00	4.50
type B or F	lf	14,720	4.00	4.50
Agg for blanket underdr	t	5,358	2.50	3.00
Surfacing material	cy	884	3.50	3.00

Concrete bridge, Idaho

Nine contractors went after an Idaho Federal Aid Project which consists of a 403-ft concrete bridge and approaches on the Middleton South Road in Canyon County. All bids were above the engineer's estimate of $65,970. E. V. Miller is the state highway engineer.

The schedule of wages to be paid are: skilled labor, $1.60; semi-skilled, $1.25; and unskilled, $1.10.

Work began the first of this month and must be complete by November. Bidders include:

1C Idaho Constr. Inc., Boise, Idaho	$70,667
2 J. O. Young & Son, Nampa, Idaho	71,035
9 J. H. Wise & Son, Boise, Idaho	94,998

Bids: 6-24-52 Items	Unit	Quantity	Unit Price 1 C	2
Removal of bridge	ls	1	$4,000	$2,500
Exc, unclassified	cy	7,300	$0.30	$0.65
for structures, sch. #1	cy	30	1.50	2.00
for structures, sch. #2	cy	20	15.00	5.00
Borrow	cy	2,800	0.30	0.55
Haul	yd mi	830	0.24	0.18
Watering embankments	M gal	300	0.50	1.50
base & surf courses	M gal	30	5.00	1.50
Rolling power roller	day	2	100.00	75.00
Rolling tamping roller	day	14	25.00	50.00
Mechanical tamping	cy	350	1.00	1.75
Gr surf, 3/4" L-H-P	cy	900	0.75	1.25
Concrete, class A				
precast stringers	cy	143	60.00	60.00
poured in place	cy	270	70.00	62.00
Metal reinforcement	lb	108,200	0.14	0.12
Steel beam handrail	lf	850	3.00	3.00
Furn pile driv equip	ls	1	$1,300	$1,000
timber piles treated	lf	2,400	$1.50	$2.00
Driving timber piles treat	lf	1,150	2.00	1.25
with trenching	lf	1,150	1.00	1.25
Driving test piles (2)	lf	70	10.00	3.00
Stress grd timber, F-1800				
creosoted treated	Mfbm	9.5	300.00	365.00
salt treated	Mfbm	2.7	300.00	350.00
Corr plate pipe arch, 10 gage 114" x 78"	lf	58	55.00	71.50
Special backfill, class A	cy	280	0.50	2.00

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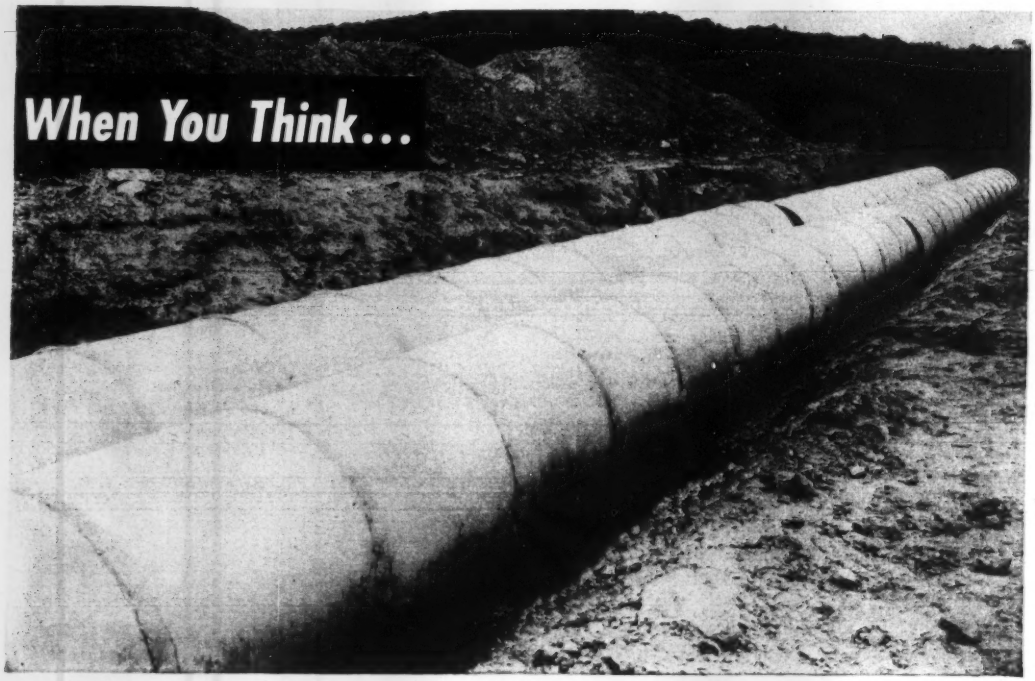

MARYLAND STATE HIGHWAY COMMISSION, CONTRACT M303-2-315
Montgomery County, Md. Relocation US Rt. 240.
Dutcher Construction Co. Queenstown, Md.
Wm. F. Childs, Jr., Chief Engineer, Baltimore, Md.
Twin 54" Line

# of Universal Sewer Pipe Corporation or United States Concrete Pipe Co.

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Sewer Pipe (Concrete)	Segment Sewer Block	Stove Pipe
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Tylox Flexible Rubber Coupled Vitrified Pipe	Ship Lap Wall Coping	Chimney Pots
Aerodrane Filter Block	Septic Tanks	Fire Brick
	Drain Tile	Fire Clay

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CINCINNATI, OHIO—P. O. NEWTOWN, OHIO—Box 215. Tel. Locust 7846

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• UNITED STATES CONCRETE PIPE COMPANY

• *GENERAL OFFICES* • 1500 Union Commerce Building • CLEVELAND 14, OHIO

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.
ELSIE EAVES, Manager — *J. A. MAHONEY, Reports* — *M. R. ROESSLER, Statistics*

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
August 4, Connecticut — August 19, Massachusetts
STREETS AND ROADS
August 4, Connecticut — August 5, Massachusetts

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **T. W. Cunningham, Inc.,** 38 Columbia St., Bangor, Me., LB $107,700, transmitter and receiver bldgs. at Limestone Air Force Base, ENG 19-016-52-78, LIMESTONE, ME. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids July 18. CD 7/9.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **State Dpt. P. Health,** State Hospital, Boston, Mass. contract rescinded when State Supreme Court ruled contractor was not low bidder Contr. 2, CHRONIC DISEASE HOSPITAL and NURSES HOME, Forest Hills, BOSTON, MASS. Will ask new bids soon. CD 11/19/51, under CA.

▲ **John A. Volpe Constr. Co.,** 54 Eastern Ave., Malden, Mass., CA. Est. $1,000,000, PHYSICAL EDUCATION CENTER, BOSTON, MASS. Northeastern University, 360 Huntington Ave., Boston, Mass. Bids July 8. CD 6/17.

▲ **Patrick J. O'Leary Bldg. Co., Inc.,** 4196 Washington St., Roslindale, Mass., CA. $1,000,000, 3 story, bsmnt. brick, steel, concrete HOME for Aged Women to be known as Manor St. Joseph's, DORCHESTER, MASS. St. Joseph's Home, 321 Center St., Dorchester, Mass. James Charles Flaherty, Halifax, Mass., archt.

▲ **A. F. Peaslee, Inc.,** 15 Lewis St., Hartford, Conn., LB. $2,543,997, HIGH SCHOOL, Burnside St., EAST HARTFORD, CONN. Town School Bldg. Comn., East Hartford, Conn. CD 7/21, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
STREETS AND ROADS
August 5, Maryland — August 8, Pennsylvania

▲† **N. Y., Sampson**—RUNWAY and TAXIWAY—B.A. After Nov. 1952—U. S. Eng., 80 Lafayette St., New York, Zone 13, runway, taxiway, apron, avgas sys. and airfield lighting at Sampson Air Force Base. $1,000,000-$3,000,000. McFarland & Brown, Press Bldg., Binghamton, archts. CD 11/27/51, under LB.

BIDS ASKED—BUILDINGS

▲† **N. J., Fort Monmouth**—LABORATORY—B.A. 8/4—U. S. Eng., 80 Lafayette St., New York, 13, N. Y., Signal Corps Research and Development Laboratory, $6,250,000. Plans deposit $80. Extended date CD 6/19.

▲ **N. J., Jersey City** — SCHOOLS — B.A. 8/6 — Bd. Educ., 2 Harrison Ave., Public School 12, $1,560,000; Elementary School 38. CD 9/27/50.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Hampton Estates Homes,** c/o Herbert Burmeister, archt., 89-30, 161 St., Jamaica, N. Y. Owner Builds. $1,900,000. 100 HOUSES on tract at 232 St. and 56 Ave., BAYSIDE, N. Y.

▲ **Gedney Assoc., Inc.,** c/o Seelig & Finkelstein, archts., 153 Pierrepont St., Brooklyn 2, N. Y. Owner Builds. $1,500,000. two 6 story APARTMENTS, Avenue H between E. 7 and 8 Sts., BROOKLYN, N. Y.

▲ **Glenbrook Homes,** c/o Oscar Silverstone, archt., 153 Pierrepont St., Brooklyn 2, N. Y. Owner Builds. Approx. $3,000,000. 140 HOUSES on tract on Newbridge Rd., south of Old Country Rd., HICKSVILLE, N. Y.

▲ **A. A. Roth,** c/o Schulman & Soloway, archts., 100-15 Queens Blvd., Forest Hills, N. Y. Owner Builds. $2,500,000. 226 HOUSES, 62-acre tract bounded by Jericho Turnpike, New York Ave. and West Hills Rd., HUNTINGTON, N. Y.

▲ **Wallace Terrace Corp.,** 2104 Holland Ave., New York, N. Y. Owner Builds. $1,500,000. two APARTMENTS, 2105-7 Wallace Ave. and 2102-4 Holland Ave., NEW YORK, N. Y. Morris Rothstein & Son, 186 Joralemon St., Brooklyn 2, N. Y., archts.

▲ **Lefrak Organization,** 97-27 64 Rd., Forest Hills, N. Y. CA. $2,000,000. four 7 story APARTMENTS, Wallace and Holland Aves., NEW YORK, N. Y. Wallace Terrace Apartemnts, c/o contractor. Morris Rothstein & Son, 186 Joralemon St., Brooklyn 2, N. Y., archts.

▲† **L. G. DeFelice & Son, Inc.,** Nettleton Ave., North Haven, Conn., LB. Approx. $1,000,000. runway, paving and grading for Jet Plane PLANT to be operated by Grumman Aircraft, in Calverton-Manorville-Wading River areas, RIVERHEAD, N. Y. Dpt. Navy, 18 St. and Constitution Ave. N. W., Wash. 25, D. C. Bids July 18. CD 1/31.

▲† **Malam Plumbing Co.,** 25-09 42 Road, Long Island City, N. Y., LB. $3,232,000, TANK FARM, at Veterans Administration at Supply Depot, Proj. 28-111, SOMERVILLE, N. J. General Services Admin., Pub. Bldgs. Service, General Services Bldg., Wash. 25, D. C. Bids July 15. CD 7/10.

▲† **Dist. P. Wks. Office,** Potomac River Naval Command, Naval Gun Factory, Wash., D. C., rejected bids July 9 HOUSING, Title 8, INDIAN HEAD, MD., LB. $3,333,-334. CD 7/15, under LB.

SOUTH

BIDS ASKED—BUILDINGS

▲ **Tenn., Memphis** — COLD STORAGE — Bids Asked — Mid-South Refrigerated Warehouse Co., c/o A. Epstein & Sons, Inc., engr-archt., 2011 W. Pershing Rd., Chicago, Ill. 115,000 sq. ft. cold storage-warehouse, $1,250,000. E. L. Harrison, Madison Bldg., Memphis, archt. CD 2/12.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **J. A. Jones Constr. Co.,** 209 W. 4 St., Charlotte, N. C., CA, $3,967,000, airmen's quarters and mess facilities, at Main Field, Eng 01-076-52-85, EGLIN AIR FORCE BASE, FLA. U. S. Eng., P. O. Box 1169, Mobile 7, Ala. Bids June 27. CD 7/3, under LB.

▲ **Houston Contg. Co.,** 2707 Ferndale Pl., Houston, Tex., CA. Approx. $200,000, 20 mi. natural gas lines, TENNESSEE and ARKANSAS;

H. C. Price Co., Box 1111, Bartlesville, Okla., CA Approx. $2,500,000. 363 mi. 26 in. natural gas lines from Greenville MISSISSIPPI to Jefferstown Station, KENTUCKY;

Anderson Bros. Corp., 6300 Navigation Blvd., Houston, Tex., CA. Approx. $375,000, 37 mi. natural gas lines from Holly Springs MISSISSIPPI to the Mississippi-Tennessee State Line Texas Gas Transmission Corp., Corp., Carthage, Tex. Grand total est. $3,075,000.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction
(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.
BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.
LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.
Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

† Federal Government
▲ ● Project of $1,000,000 or over.
B.A. Bids Asked
ENR Engineering News-Record
CD Engineering News-Record Construction Daily

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Alexandria Redevelopment & Housing Auth.,** Cameron Valley, Alexandria, Va., rejected bids, 194 or 148 units of HOUSING, Proj. VA 4-4, ALEXANDRIA, VA., Base Bid I, LB. $1,603,844; Base Bid II, LB. $1,585,000; Base Bid III, LB. $1,241,000; Base Bid IV, LB. $1,227,000. CD 4/22, under LB.

▲ **C. D. Spangler,** 1026 S. Blvd., Charlotte, N. C. Owner Builds. $8,750,000. 1,054 HOUSING units, JACKSONVILLE, N. C.

▲† **Hiwassee Constructors,** joint venture of **Walters & Trater, Inc.,** Morristown, Tenn., **Mark K. Wilson Co.,** Chamberlain Bldg., Chattanooga, Tenn., **Stein Constr.,** 1077 Duncan Ave., Chatanooga, Tenn. and **Johnson & Willard Co.,** 422 W. Front St., Knoxville, Tenn. CA $14,072,500, rehabilitation of facilities at Volunteer ORDNANCE WORKS, CHATTANOOGA, TENN. U. S. Eng., 303 Federal Office Bldg., Nashville, Tenn. Former contract rescinded. CD 6/13, under CA.

BIDS ASKED—BUILDINGS

MIDDLE WEST

BIDS ASKED—BUILDINGS

O., **Columbus**—SCHOOL—B.A. 7/30—Bd. Educ., 270 E. State St., superstructure for brick, concrete, steel, Garfield Elementary School. $350,000. Plans deposit $10. Brooks & Coddington, 329 E. Broad St., archts. CD 2/29.

▲ **Ind., Indianapolis**—PLANT—Bids Asked—Cold Metal Products Co., 45 Montgomery St. S., Youngstown, O., fabricating steel plant, $3,500,000.

▲ **Mich., Edmore**—FACTORY—Bids Asked—Carboloy Co., Inc., K. R. Beardslee, pres., 11177 E. 8 Mile Rd., Detroit, brick, steel, concrete factory. $3,000,000. Smith, Hinchman & Grylls, 800 Marquette Bldg., Detroit, archts. CD 5/1.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Great Lakes Dredge & Dock Co.,** Williamson Bldg., Cleveland 14, O., LB $1,976,640, est. $1,400,000. 3,444 ft. steel, concrete seawall in Lake Erie from E. 55 to E. 72 Sts., Cleveland, Cuyahoga Co., OHIO. State Hy. Dpt., T. J. Kauer, dir., Columbus, O. Bids July 22. CD 7/7.

▲ **ILLINOIS**—State Div. Hys., Springfield,

S. J. Groves & Sons Co., 1104 W. Reynolds St., Springfield, Ill., LB, $1,387,807, c. conc. base course, bit resurf., culvert alterations, 4.78 mi. Ill. 37, Jefferson and Franklin Counties; LB, $314,484, bit. resurf. 20.15 mi. Ill. 37, Williamson and Johnson Counties; LB, $1,142,039, grading for dual pave and c. conc. 3.78 mi. Ill. 122 relocation Will Co.;

Jansen & Schaefer, 1500 Broadway, Pekin, Ill., LB. $564,991, c. conc. 4.56 mi. U. S. 51, Marshall;

Leininger Constr. Co., 30 N. La Salle St., Chicago 2, Ill., LB. $797,562, grading for dual pave and c. conc. 4.48 mi. Ill. 122 relocation, Cook and Will Counties;

Trompeter Constr. Co., 2428 4 St., Peru, Ill., LB. $553,257, hydraulic dredging fill and vertical sands drain installation, U. S. 51, La Salle Co. Bids July 18. CD 7/10.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Herlihy Midcontinent Co.,** 135 S. La Salle St., Chicago, 3, Ill., CA, $4,482,000, HOUSING, incl. 455 units, Ida B. Wells Extension, 36 St. and S. Rhodes Ave., CHICAGO, ILL. Chicago Housing Auth., 608 S. Dearborn St., Chicago, 5, Ill. Bids June 11, awarded July 17. CD 6/17, under LB.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
August 8, Minnesota — August 19, 20, Texas
STREETS AND ROADS
August 8, Minnesota — August 19,20, Texas

▲ **Tex., Galveston**—HOUSING—B.A. 8/28—Galveston Housing Auth., City Hall, Tex. 7-4, superstructures for 254 dwelling units for total 34 two story bldgs. $1,778,000. Plans deposit $25. R. R. Rapp & Fred T. Stafford and Thomas N. Price, 417 Guaranty Bldg., Galveston, and Arne G. Engeberg, 915 Woodrow St., Houston, archts. Howard & Johnson, Scanlan Bldg., Houston, engrs. CD 6/29/50.

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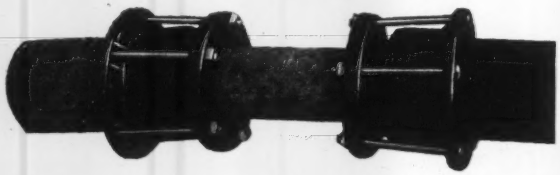

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▲ Tex., Texas City—CHEMICAL PLANT—Bids Asked—Carbide & Carbon Chemicals Div. of Union Carbide & Carbon Corp., Texas City, chemical plant expansion. $13,873,000. CD 11/1/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† Ferranti Electric, Ltd., of New York, 30 Rockefeller Plaza, New York, N. Y., CA. $1,137,605, supply 9 power transformers for Garrison Dam and Reservoir Proj., NORTH DAKOTA. U. S. Eng., Fort Lincoln, P. O. Box 300, Bismarck, N. D. Bids Apr. 17. CD 3/26.

▲ † U. S. Eng., 1709 Jackson St., Omaha, Neb. rejected bids June 11, barracks, mess halls and appurtenant facilities at Rapid City Air Force Base, Inv. 52-94, RAPID CITY, S. D. LB $2,249,315, Alt. LB $2,256,888. CD 6/16, under LB.

▲† J. J. Fritch, Inc., 6834 Harry Hines Blvd., Dallas, Tex., CA. $1,633,996, est. $1,929,164, dormitories and mess halls Ardmore Air Force Base, ENG 34-066-52-77, ARDMORE, OKLA., U. S. Eng., Box 61, Tulsa 2, Okla. Awarded June 30. CD 7/21, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ O. A. Stocke & Co., Rochester, Minn., CA. $3,000,000 12 story HOTEL addn., ROCHESTER, MINN. Kahler Co., R. Watson, pres., Rochester, Minn. (Correction—contractor). CD 7/21, under CA.

▲ Swenson Constr. Co., 3305 Terrace St., Kansas City, Mo., CA, Est. $4,500,000, general contract, diesel locomotive SHOPS, store house, etc. Argentine Yards, KANSAS CITY, MO. Atchison, Topeka & Santa Fe Ry. System, F. D. Kinie, ch. engr., General Office Bldg., Kansas City, Kans. Bids May 15. (Correction—contractor). CD 5/9, under CA.

▲Gasoline Plant Constr. Co., N. Esperson Bldg., Houston, Tex., CA. $2,300,000, alkylation PLANT (gasoline processing unit), DUMAS, TEX. Shamrock Oil & Gas Co., 1st Natl. Bank Bldg., Houston, Tex. CD 7/22.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
BRIDGES
August 13, 14, California

STREETS AND ROADS
August 13, California

▲ Calif., Los Angeles—B.A. 8/14—Metropolitan Water District of Southern California, 306 W. 3 St., Los Angeles, Cajalco Tunnel for lower feeder 1½ miles $1,000,000. CD 12/21/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† Smith Bros., Vancouver, Wash., CA. $1,124,351. Sch. 2, Olympia-Columbia Section;
Montgomery Electric Co., 2325 N.W. Thurman St., Portland, Ore., CA. $752,269, Sch. 3, Olympia-Columbia Section, Grand Coulee-Olympia Line, Inv. 6516, Thurston, Pierce, King, Kittitas, Chelan and Douglas Counties, WASHINGTON. Bonneville Power Admin., 827 N.E. Oregon St., Portland, Ore. Awarded July 15. CD 7/16, under LB.

▲ † U. S. Eng., City-County Airport, Walla Walla, Wash. rejected bids June 26, dormitories at Fairchild Air Force Base, ENG. 45-165-52-34, SPOKANE, WASH. LB. $2,113,845. Project cancelled. CD 7/3, under LB.

▲† Woodward Governor Co., 5001 N. 2 St., Rockford, Ill., CA. $1,017,491, turbine equip. McNary Dam power house, CIVENG 45-164-52-111, Umatilla Co., OREGON. U. S. Eng. City-County Airport, Walla Walla, Wash. Bids June 24, awarded July 22. CD 6/30, under LB.

▲† **General Electric Co.**, Box 690, Pasco, Wash., CA $7,607,405. Units 1, 2, and 3, generators, McNary Dam CIVENG 45-164-52-112, Umatilla Co., OREGON. U. S. Eng., City-County Airport, Walla Walla, Wash. Bids July 8, awarded July 18. CD 7/15, under LB.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,

Charles L. Harney, Inc., 575 Berry St., San Francisco, Calif., CA. $2,095,604, superstructure and portion of substructure for portion of bridge and misc. roadway on 13 St. between Mission St. and Rt. 88, San Francisco Co. Bids July 2, awarded July 14. CD 7/11, under LB.

▲† **P. J. Walker Co.**, 3900 Whiteside Ave., Los Angeles, Calif., LB, $1,594,951, Barracks, Marine Corps Air Station, NOY 71128, Spec. 32682, EL TORO, CALIF. Eleventh Naval Dist., San Diego, Calif. Bids July 13. CD 6/17.

▲ **M & K Corp. and Fredrickson & Watson Constr. Co.**, 873 81 Ave., Oakland, Calif., CA. $1,779,303, municipal sewage collection and treatment system, HAYWARD, CALIF. City, City Hall, Hayward, Calif. Bids July 7, awarded July 15. CD 7/15, under LB.

▲† **F. E. Young Constr. Co.**, P.O. Box 2872, San Diego, Calif., LB. $1,093,000, Enlisted Men's SERVICE STATION at Naval Air Station, NOY 7190, Spec. 32644, MIRAMAR, CALIF. Dpt. Navy, San Diego, Calif. CD 5/23.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Rand Constr. Co.**, 1426 S. LaBrea St., Los Angeles, Calif. Owner Builds. Approx. $1,000,000. 114 cement block DWELLINGS, Bel Air Tract, LAS VEGAS, NEV. Wm. M. Bray, 5670 Wilshire Blvd., Los Angeles, Calif., archt.

▲ **Broadway Center Co.**, 9869 Santa Monica Blvd., Beverly Hills, Calif., CA, Approx. $2,300,000, 230 frame, stucco DWELLINGS in Tract 1565, ANAHEIM, CALIF. Fred Smith, 9869 Santa Monica Blvd., Beverly Hills, Calif. Edward H. Fickett, 5657 Wilshire Blvd., Los Angeles, archt.

▲ **Baruch Corp.**, 321 S. Vicente Blvd., Los Angeles, Calif., LB, $1,177,000, 1 story, 198-bed post polio HOSPITAL, Hondo, LOS ANGELES CALIF. Los Angeles Co., Hall of Records, Los Angeles, Calif. Bids July 15.

▲ **Liberty Bldg. Co.**, Box 25, Pomona, Calif., Owner Builds. $1,965,560, 156 frame, stucco DWELLINGS, Orange Grove Ave., Kellog Park Dr., Arroyo Dr., POMONA, CALIF.

▲ **H. M. Hodges & Pozzo Constr. Co.**, 5531 Venice Blvd. Los Angeles, Calif., LB, $1,126,000, PLANT, BIOLOGICAL SCIENCE BLDG., Riverside Campus, RIVERSIDE, CALIF. University of California, 405 Hilgard Ave., Los Angeles, Calif. Bids July 15. CD 4/21.

▲ **Theo G. Meyer & Sons**, 200 Quint St., San Francisco, Calif., CA, $1,560,287, Bernal HOUSING, incl. 208 units, SAN FRANCISCO, CALIF. San Francisco Housing Auth., 440 Turk St., San Francisco Calif. Bids June 17. CD 6/27, under LB.

ALASKA

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **Haddock Engineers, Ltd. & Assoc.**, Securities Bldg., Seattle 1, Wash., CA. Approx. $1,000,000, rein.-con. SCHOOL, 17,000 ft. 18 in. water supply line at Naval Base, KODIAK, ALASKA. Yards & Docks Annex, Navay Dpt., Arlington, Va. L. A. Daly Co., 633 Insurance Bldg., Omaha, Neb., engrs. CD 5/16, under LB.

CANADA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Louis Donolo, Inc.**, 8120 Blvd. St. Lawrence, Montreal, Que., CA, $1,750,000, administration and operational bldg., ST. HUBERT QUE. Govt. of Canada Dpt. National Defence, AIR, Cartier Sq., Ottawa, Ont. Bids May 13. CD 5/7.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **E. K. McLean Constr. Co.**, 107 Grand Ave., London, Ont., CA, Approx. $2,750,000, 350-suite APARTMENTS, LONDON, ONT. Realty Development Co., 107 Grand Ave., London, Ont. E. K. McLean, c/o owner, engr.

▲ **J. L. E. Price & Co., Ltd.**, 680 W. Sherbrooke St., Montreal, Que., CA, $3,000,000, 7 story bsmnt. rein.-con. structural steel, brick, stone, HOSPITAL, Ste. Catherine Rd., MONTREAL, QUE. Jewish General Hospital Bd., 3755 Cote des Neiges Rd., Montreal, Que. Bids June 25. CD 5/22.

LATIN AMERICA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Constructora Cuauhtemoc**, Direccion Conocido, Monterrey, N.L., CA. $1,500,000. irrigation dam, SAN ANTONIO, MEXICO. Sria De R.H., P. de la Reforma 69, Mexico City, Mexico. Awarded July 21. CD 12/5.

(Proposal Advertisements see pp. 72 to 75)

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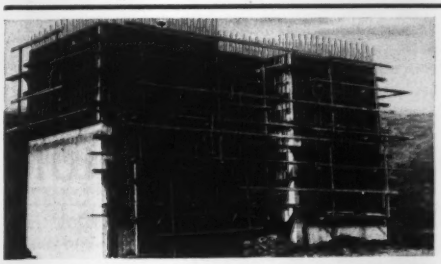

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Allied Engineering Corp., 71 Proctor St., Roxbury, Mass. CA. $884,108, est. $884,000. Contr. 186 completion 48 in. pipe line connection to Blue Hill Reservoir, Boston, Quincy and Milton, BOSTON, MASS. Commonwealth of Mass., Metropolitan Dist. Comn., Constr. Div., 20 Somerset St., Boston, Mass. by American Surety Co., 100 Broadway, New York, N. Y. Bids June 10. CD 5/22.

▲† **Jefferson Constr. Co.**, 75 First St., Cambridge, Mass., CA. $1,666,787, engine storage bldg. and exten. Bldg. 17, Naval Air Station, Svec. 31271, QUONSET POINT, R. I. P. Wks. Dpt., 495 Summer St., Boston, Mass. Bids June 10. CD 6/17, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

E. W. & P. B. Currier, 7 Sanborn Terrace, Amesbury, Mass. LB. $920,900. HOSPITAL addn., alterations, Highland and Rawson Aves., NEWBURYPORT, MASS. Anna Jacques Hospital, Highland Ave., Newburyport, Mass. Bids July 15. CD 6/17.

▲ **Town, School Bldg. Comn.**, Town Hall, East Hartford, re-ected bids June 26, HIGH SCHOOL, Burnside Ave., EAST HARTFORD, CONN. LB. $2,918,460. New Bids July 21. CD 7/9, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

Pa., Ambridge—B.A. 8/8—Ambridge Boro Water Auth., Boro Bldg., Contr. 6, general constr., Contr. 7, heating and plumbing, Contr. 8, electrical work for addns., alterations to water softening plant. Plans deposit $15. The Chester Engineers, 210 East Park Way, Pittsburgh, Zone 12, engrs.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton.

Peter W. Kero, Inc., 615 Schuyler Ave., Lyndhurst, N. J., LB, $1,673,259, grading 3.926 mi. Route 46 (Sect 1) from Dunnfield to Columbia, Warren Co. Bids July 10. CD 6/23.

▲ **PENNSYLVANIA**—State Hy. & Bridge Auth., 506 North Office Bldg., Harrisburg.

C. W. Good, Inc., 726 Columbia Ave., Lancaster, Pa., LB, $3,391,596, est. $3,000,000. Schedule 1, concrete deck I-beam; 2 rein.-con. and one concrete arch bridges; Schedule 2, continuous concrete deck I-beam; 1 continuous deck plate girder and I-beam bridges, Rte. 122, Berks and Schuylkill Counties. Bids July 18. CD 6/9.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 North Office Bldg., Harrisburg.

W. L. Dunn Constr. Co., Cochranton, Pa., LB $529,888. construct 39,770 ft. crushed aggregate base road with bit. surf. 20 ft. wide, widn. and overlay of existing pavement, L. R. 20018 (1-R), 20019 (1-R), 20011 (1-R), Crawford Co.;

Jack and Jim Maser, Box 116, Brownstown, Pa., LB $115,545. construct 6,410 ft. crushed stonebase with bit. surf. 22 ft. wide, L. R. 36013 (2), 36047 (2), 36046 (1), Lancaster Co.;

Keelor Constr. Co., Pennsburg, Pa., LB $181,359. widn. 12,733 ft. pavement with crushed aggregate base and bit. surf., new base and existing pavement, Appl. 915 (1); 1029 (1), Northampton Co.;

Burrell Constr & Supply Co., New Kensington, Pa., LB $221,487, widn. 17,394 ft. existing road with granulated slag base or crushed aggregate base and bit. surf., new base and existing pavement, T. R. 906, Westmoreland and Allegheny Counties. Bids July 18. CD 6/19.

▲ **Dravo Corp. Contrng. Div.**, Neville Island, Pittsburgh 25, Pa., CA 800 ft. curved railroad bridge over Delaware River.

Bethlehem Steel Co., E. 3 St., Bethlehem, Pa., CA, furnish, erect superstructure for the 5 main river spans of the bridge, near MARTINS CREEK, PA., Pennsylvania R.R., J. L. Gressitt, ch. engr., Broad St. Station Bldg., 1617 Pennsylvania Blvd., Phila. 4, Pa.

▲ **Square Constr. Co.**, 115 S. Haven St., Baltimore, Md., LB $1,185,888. Sanitary Contr. 400, 700 lin. ft. manholes, 9,800 cu. yd. concrete, 101a tons reinforcing steel, 38,300 SO ft. vitr. clay liner plates, 6,300 ft. wood piles, 7,750 ft. 30- to 42-in. R.C.C.P. misc. items, BALTIMORE, MD. City, Bureau of Sewers, 312 Municipal Bldg, Baltimore 2, Md. Bids July 16. CD 7/3.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Costanza Contg. Co.**, 6515 Crescent Blvd., Pennsauken, N. J. CA $1,013,400. general constr. 1 story, brick Junior-Senior High SCHOOL, Old Lincoln Hy., Middletown Twp., LANGHORNE, PA. Lower Bucks County School Auth. Neshaminy High School Langhorne Pa. Bids June 6 awarded July 11. CD 6/12 under LB.

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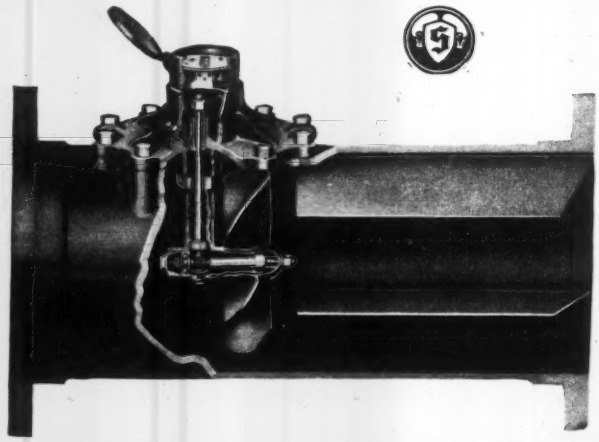

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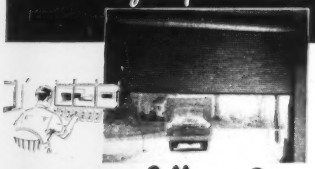

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▲ Wark & Co., 1920 Sansom St., Phila., Pa., CA $1,687,000 general constr. Mercy-Douglas HOSPITAL, 50 and Woodlawn Sts., PHILA., PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids July 8. CD 7/15, under LB.

▲ Morrow Bros. Inc., 2315 N. Charles St. Baltimore, Md., CA. $1,748,300. est. $500,000. Towson Catholic HIGH SCHOOL and CONVENT, brick, concrete, steel. TOWSON, MD. Immaculate Conception Parish, Baltimore and Ware Aves., Towson, Md. Bids June 23. CD 7/1, under LB.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

Ala., Birmingham—B.A. 8/12—Jefferson Co., Court House, 850,000 cu. yd. unclassified excav. for Ensley Sewage Treatment Plant, $300,000. J. W. Goodwin Eng. Co., 2111 7 Ave. S., Birmingham, La., engr. CD 8/12/49.

BIDS ASKED—BUILDINGS

Tenn., Knoxville—SCHOOL—B.A. 8/6—Knox. Co. Bd. Educ., Court House, Karns Elementary School addns. Plans deposit $25. James T. Mitchell, 716½ Gay St., S.E., archt.

† S. C., Fort Jackson—SHOP—B.A. 8/7—U. S. Eng., Box 905, Charleston, construction of addns. to tank repair shop, ENG 38-081-53-2B.

Va., Dinwiddie—HIGH SCHOOL—B.A. 8/12—Dinwiddie County School Bd., Dinwiddie, 2 story, brick, concrete masonry Negro High School. $700,000. Plans deposit $25. Dixon & Norman, 1103 E. Main St., Richmond, archts.

Va., Berryville—HIGH SCHOOL—B.A. 8/14—Clarke Co. School Bd., Berryville, 2 story brick, concrete masonry Clarke County High School. $700,000. Plans deposit $25. Dixon & Norman, 1103 E. Main St., Richmond, archts.

Va., Manassas—HIGH SCHOOL—B.A. 8/21—Prince William Co. School Bd., Manassas, 2 story brick, concrete masonry Gar-Field High School at Dumfries. $800,000. John M. Walton & Assoc., 2049 15th St. N., Arlington, archt. CD 6/26.

SOON LETS CONTRACT—BUILDINGS

Ga., Atlanta—OFFICE—National Life & Accident Insurance Co., c/o Hart, Freeland & Roberts, archts., Third National Bank Bldg., Nashville, Tenn., soon lets contract office bldg.

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

† Riggs Distler & Co., 216 N. Calvert St., Baltimore 2, Md., LB. $342,000 designing, furnishing, installing

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4. Presents the results of a survey sponsored by The Conservation Foundation, providing much information on present development and use of ground water throughout the U. S. For hydrologists, geologists, engineers. Gives basic facts and data, an outline inventory, and maps of total resources. Covers ground water problems resulting from pumping, land settlement and use, irrigation, drainage, waste-disposal, etc. By Harold E. Thomas, U. S. Geological Survey. 321 pages, 3 maps, $6.00

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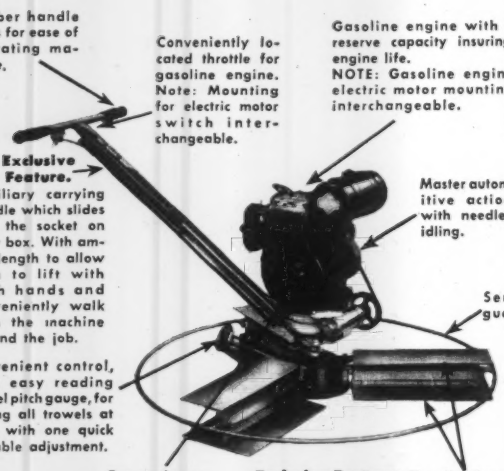
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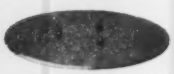

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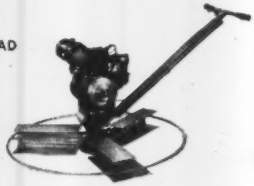

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† **F. J. Gannaway,** Norfolk, Va., CA. **$107,320,** water lines, FORT EUSTIS, VA. U. S. Eng., foot of Front St., Norfolk, Va. CA 2/9/51, under Public Buildings.

† **Carpenter Constr. Co.,** Bank of Commerce Bldg., Norfolk, Va., LB. **$138,900,** fuel oil pumping and storage facility at Craney Island, NOY 72441, NORFOLK, VA. Dist. P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids June 26. CD 6/16.

† **T. F. Scholes,** Box 112, Reading, Pa., LB. **$177,423,** repairing railroad at U. S. Naval Ammunition Depot, NOY 73584. Spec. 33661, ST. JULIENS CREEK, VA. P. Wks. Office, Headquarters, Fifth Naval Dist., U. S. Naval Base, Norfolk 11, Va. Bids June 24. CD 6/11.

† **Fred Howland, Inc.,** 1451 N.W. 20 St., Miami, Fla., CA, **$614,697,** four buildings, shop, transportation cold and dry storage, Naval Air Station, NOY 71517, KEY WEST, FLA. Dpt. Navy Officer In Charge of Construction, Box 465, Naval Base, S. C. Bids July 9. CD 7/15, under LB.

▲† **Fred Howland, Inc.,** 1451 N.W. 20 St., Miami, Fla., LB. **$1,624,642,** U. S. Fleet Sonar School, KEY WEST, FLA. Sixth Naval Dist., Charleston, S. C. Rader Eng. Co., du Pont Bldg., Miami Fla., engr. Robert Law Weed, 550 Brickell Ave., Miami, Fla., archt. Bids July 16.

† **Shelby Constr. Co.,** 1106 Canal St., New Orleans, La., LB. **$487,777,** public works transportation bldg., Spec. 33687, PENSACOLA, FLA. Officer-In-Charge of Construction, Bldg. 45, Naval Air Station, Pensacola, Fla. Bids July 15. CD 6/19.

Lincoln Plumbing & Heating Co., Ruston, La. CA **$145,177.** water supply sys., DELHI, LA. Town, Delhi, La. Bids June 26. CD 6/3.

W. Johnson, Union Springs, Ala. CA est. **$200,000.** Drive-in theater, LAFAYETTE, LA. Nona Theater, Lafayette, La.

Roland Constr. Co., Alexandria, La. LB **$168,325.** Proposal A, sewage collection sys.

T. Miller & Sons, Lake Charles, La. LB **$91,277.** Proposal B, sewage treatment plant, MAMOU, LA. Town, Mamou, La. Bids July 11. CD 6/12.

BUILDINGS

LOW BIDS AND CONTRACTS

† **McKoy-Helgerson Co.,** 320 S. Hudson St., Greenville, S. C. CA. **$967,558,** TRAINING FACILITIES, FORT LEE, VA. U. S. Eng., foot of Front St., Norfolk, Va. CD 7/15 under LB.

O. P. Woodcock Co., W. Monroe St., Jacksonville, Fla., CA, **$349,444,** 34 classroom SCHOOL in East Jacksonville for Negroes, JACKSONVILLE, FLA. Bd. P. Instruction, 605 Ocean St., Jacksonville, Fla. Harvey

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D. Frye, 409 College St., Jacksonville, Fla., archt. Awarded July 10. CD 9/13/49.

S. J. Curry & Co., Albany, Ga., CA $339,367, COURT HOUSE, TROY, ALA., Pike Co., Court House, Troy, Ala. Bids July 15. CD 6/13.

Werner Co., 1320 Pierre Ave., Shreveport, La. CA Est. $375,000. St. Vincents Avenue LABORATORY addn., SHREVEPORT, LA. United Gas Corp., Fairfield Ave., Shreveport, La.

† B. J. Johnson & Sons Co., Inc., 1735 Berry Blvd., Louisville, Ky. CA $396,626, standardization of 35 MESS HALLS; CA $420,600, imprvs. to 14 bachelor officers' QUARTERS, FORT KNOX, KY. U. S. Eng., Armored Center, Central Purchasing & Contracting Branch, G-4, Fort Knox, Ky. CD 9/28/51.

▲† F. H. McGraw & Co., 780 Windsor St., Hartford, Conn. CA $459,000,000, addn. to uranium separation PLANT, PADUCAH, KY. U. S. Atomic Energy Comm., 1901 Constitution Ave., N.W., Wash. 25, D. C.

Wolter Constr. Co., 123 E. 6 St., Cincinnati, O. LB $404,000, general and mechanical contracts 1 story, 61x315 ft., brick over concrete block SCHOOL, WALTON, KY. Walton-Verona Independent School Dist., Burlington, Ky. Richard Elliston & Assoc., 18 E. Fourth St., Cincinnati, O., archts. Bids July 15.

Emory & Richards, 2117 N. Central St, Knoxville, Tenn. CA. $401,036, Beaumont Elementary SCHOOL addn., KNOXVILLE, TENN. Knox Co. Bd. Educ., Court House, Knoxville, Tenn. Bids July 11. CD 6/19.

▲† F. Maxon Const. Co., 131 N. Ludlow St., Dayton, O., CA. $464,000,000, atomic diffusion PLANT addn., OAK RIDGE, TENN. U. S. Atomic Energy Comm., 1901 Constitution Ave., N.W. Wash. 25, D. C.

MIDDLE WEST

BIDS ASKED—BUILDINGS

Mich., Grand Rapids—SCHOOL—B.A. 8/5—City, H. P. Herrinto, secy., Bd. Educ., 2 story, bsmnt., brick, steel Alger-Madison Elementary School, $300,000. Extended date. Louis C. Kingscott & Assoc., Inc., 511 Monroe St., Kalamazoo, archt. CD 6/25.

▲ Ill., Benton—HOSPITAL—B.A. 8/14—Franklin Co. Hospital Bd., Benton, hospital. $1,800,000. Consoer, Townsend & Assoc., 351 E. Ohio St., Chicago, 11, Ill. archts. CD 11/10/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ INDIANA—State Hy. Comn., Indianapolis, Zone 4, Olinger Constr. Co., Huntingburg, Ind., LB, $113,878 est. $142,156, two 3 span 120 ft. rein.-con. girder bridges over Crookes Creek, south of Lamar Spencer Co.; LB $99,745, est. $125,314, 2 span 91 ft. continuous steel beam bridge over Buck Creek Sullivan, Sullivan Co.;

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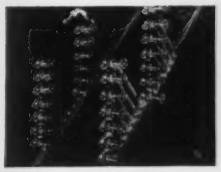

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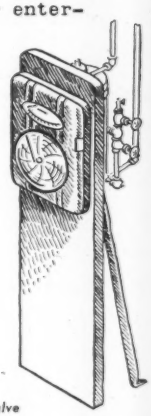

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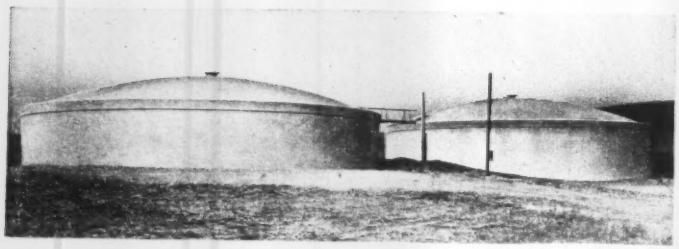

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Harold Tharp, Fountain City, Ind., LB, **$784,992**, est. $936,549, 17 span 790 ft. l. rein.-con. girder steel bream bridge over Penna. Ry., Richmond, Wayne Co.;
Ruckman-Hansen, Inc., 3617 Leo Rd., Fort Wayne, Ind., LB **$127,848** est. $154,098, 1 span 60 ft. steel beam bridge over Pigeon Creek west of Angola, rein.-con. slab underfill, over Fly Creek east edge of La Grange, Steuben and La Grange Counties. Bids July 15. CD 7/1.
Frenzel Bros. Co., 3015 N. California St., Chicago, Ill., LB, **$269,903**, paving Wilke and Kirchoff Rds., new Arlington Heights;
American Steel & Wire Co., 208 S. La Salle St., Chicago, 4, Ill., LB, **$62,658**, fencing for Edens Expressway;
U. S. Steel Corp., 208 S. La Salle St., Chicago, 4, Ill., LB, **$87,987**, fencing for Edens Expressway, CHICAGO, ILL. Cook Co., County Bldg., Chicago, Ill. CD 11/3/49.
▲ **Robt. R. Anderson Co.**, 4550 S. Patterson St., Chicago, 41, Ill., LB, **$341,343**, grade separation, Mannheim (Lagrange) Rd. over Congress Expressway; LB, $177,221, grade separation Congress Expressway under Illinois Central R. R., r/w, Hillside;
Arcole Midwest Corp., 3225 Main St., Evanston, Ill., LB **$97,562**, grade separation Westchester Blvd. over Congress Expressway, Westchester; LB, **$953,796** grade separation, Congress Expressway under Indiana Harbor Belt R. R., Broadview;
Superior Concrete Constr. Co., 5113 S. Woodlawn Ave., Chicago, 15, Ill., LB, **$172,067**, substructure grade separation 130 St. over Michigan Central R. R. Chicago;
State Improvement Co., 30 N. La Salle St., Chicago, 2, Ill., LB, **$196,165**, grade separation, 130 St. at Michigan Central R. R. Superstructure, CHICAGO, ILL. Cook Co., County Bldg., Chicago, Ill. Bids July 15. CD 7/9.

BUILDINGS

LOW BIDS AND CONTRACTS

Leo Michuda & Son, 514 E. 95 St., Chicago, Ill., CA, $845,000, 3 story, bsmnt., brick, concrete, steel Shakespeare Grade SCHOOL Addn. CHICAGO, ILL. Bd. Educ., 228 N. La Salle St., Chicago, 1, Ill. Bids June 27, awarded July 11. CD 7/9.
▲ **Mazzuco Constr. Co.**, 4 E. Clinton St., Joliet, Ill., CA, $2,000,000, CATHEDRAL, 604 N. Raymond Ave., JOLIET, ILL. St. Raymonds Parish, 4 E. Clinton St., Joliet, Ill. Bids June 10, awarded July 14. CD 7/11, under LB.
▲ **Arthur A. Nechman**, Birmingham, Mich. Owner Builds. Est. $2,500,000. 210 brick, single HOMES, incl. roads, utilities, 65 acre site, TROY, MICH.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Nebraska, Kansas and Colorado**—RADIO COMMUNICATION EQUIPMENT—B.A. 8/14—Bureau Reclamation, Dpt. Interior, McCook installing radio communication equip. in southwestern Nebraska, northwestern Kansas and eastern Colorado, Spec. 701C-269.

BIDS ASKED—BUILDINGS

Tex., Gatesville—SCHOOL—B.A. 8/8—State Bd. Control, State Bldg., Austin, general repairs, remodeling, (9 bldgs.), Gatesville State School for Boys. Approx. $300,000. Baldridge & Harris, 209 W. 7 St., Austin, archts. CD 5/26.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **F. Morretini**, 1416 Maryland Ave. E., St. Paul, Minn. LB $151,394. WW, storm and sanitary sewers;
S. J. Groves & Sons Co., 510 Wesley Temple Bldg., Minneapolis, Minn. LB **$263,987**. Combined bid on WW, storm and sanitary sewers, electric service lines, paving, grading, etc., Wold-Chamberland Air Force Base, MINNEAPOLIS, MINN. U. S. Eng., 1709 Jackson St., Omaha 2, Neb. Bids July 2. CD 5/1 under LB.
City, City Hall, Bismarck, N. D. rejected bids June 19, oiled earth street tr. for 300 blocks, BISMARCK, N. D. LB $451,200. CD 2/19/47.
▲ † **Glade Constr. Co.**, Century Bldg., Fort Worth, Tex., LB **$1,814,243**, est. $1,949,884, eight 3 story masonry barracks;
J. J. Fritch Co., 6834 Harry Hines Blvd., Dallas, Tex., LB **$1,633,996**. Alt. A, for eight 3 story frame dormitories and mess halls, Spec. Eng. 34-066-52-77, Ardmore Air Force Base, ARMDORE, OKLA. U. S. Eng., Box 61, Tulsa, Okla. CD 1/24.
▲ **TEX**—State Hy. Comn., Highway Bldg., Austin,
Adams Bros., P. O. Box 271, Kaufman, Tex. and
W. S. Crawford, 5350 Montrose Dr., Dallas, Tex., LB $141,190, grading, structures, base, surf. 5.16 mi. Hy. FM 1722, Proj. V 1317-3-1, Ellis Co.;
R. N. Adams, P. O. Box 376, Kaufman, Tex., LB $15,272. grading, structures, base, surf. 8.197 mi. Hy FM 778, Proj. S 1644 (1), Wood Co.;
Bell, Braden, Barker & Gilvin, Inc., Box 2268, Amarillo, Tex., LB **$108,438**, flexible base, 2 course surf. tr. 2.424 mi. Hy. U. S. 60 and SH 152, C 169-7-14, Gray Co.;
Cage Bros. 506 Travis Bldg., San Antonio, Tex., LB $342,117, flexible base, 2 course surf. tr. 9.924 mi. Hy. U. S. 67, Proj. F 1048 (3), Erath and Somervill Co.; LB **$431,127**, est. $300,000. flexible base, 2 course surf. tr. 6.496 mi. Hy. SH 174, Proj. F 20 (8), Johnson Co;
Cooper & Woodruff, 222 Mays Bldg., Amarillo, Tex., LB **$115,879**, est. $90,000. grading, structures, base, surf. 9.027 mi. Hy. FM 209, Proj. R 1076-2

Continued on page 90

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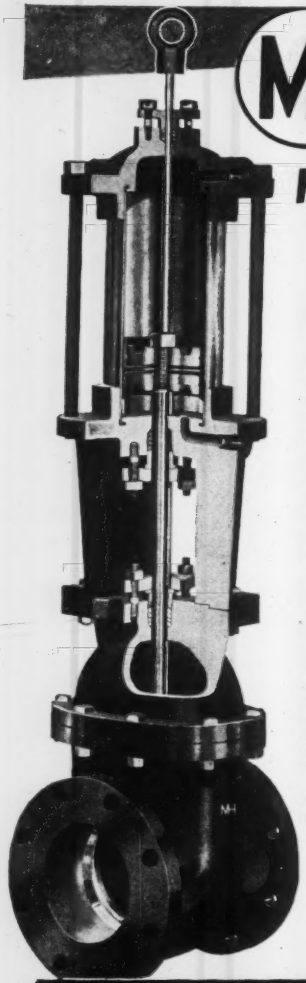

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Continued from page 88

and 1-4 and 4, Young and Throckmorton Counties; LB $127,952, grading, structures base, surf. 1.306 mi. Hy. FM 143, Proj. R 496-4-3, Knox Co.;
F & C. Engineering Co., Houston, Tex., LB **$667,302.** grading, structures, pavement 1.874 mi. Hy. SH 255 and 163 level interchange and south approaches to Baytown Tunnel, F 1081 (6), Harris Co.;
C. R. Heidelberg, 320 Jackson St., Jacksonville, Tex., LB $102,311. grading, structures, base, surf. 8.834 mi. Hy. FM 1817, Proj. R 1784-1-1, Anderson Co.;
John T. Leslie, 5513 E. Grand St., Dallas, Tex., LB **$109,650.** grading, structures, base, surf., 10.843 mi. Hy. FM 265 and 1441, Proj. S 1019 (2) and S 1838 (1), Dickens Co.;
Ernest L. Mays, 710 14th St., Beaumont, Tex., LB **$84,963.** grading, structures, flexible base, one course surf. tr. 4.824 mi. Hy. SH 63, Proj. C 244-2-27, Jasper Co.;
Hugh McMillan, P. O. Box 1227, El Paso, Tex., LB **$223,183.** widn pavement, resurf. and construct shoulders 12.336 mi. Hy. U. S. 80, Proj. C 2-3-7, El Paso Co.;
Texas Bitulithic Co., P. O. Box 5297, Dallas, Tex., LB **$246,003.** grading, structures, fdn. course and c. conc. pavement 2.159 mi. Hy. U. S. 277, Proj. AD-4, Wichita Co.;
Thomas & Ratliff, Rogers, Tex, LB **$89,146.** grading, structures, base, surf. 9.938 mi. Hy. FM 46, Proj. R 540-2-2, Robertson Co.;
H. B. Zachary Co., P. O. Box 2570, San Antonio, Tex., LB $174,580, widn. structures 0.3 36 mi. Hy. U. S. 90, Proj. F 484 (11), Kinney Co. Bids July 15. CD 6/26, 7/2, 7/8.
▲ **TEXAS**—State Hy. Comn., Highway Bldg., Austin.
Schwope Bros., 6633 W. Commerce St., San Antonio, Tex., LB. **$122,596.** grading, structures, base, surf. 7.375 mi. Hy. FM 674, Proj. S 112 (3), Edwards Co.;
Ivan Dement, Box 1787, Amarillo, Tex., LB. **$364,057.** flexible base, two course surf. tr. 13.925 mi. Hy. SH 256, Proj. S 1562 (1), Briscoe Co.;
Ernest Loyd, Box 1120, Fort Worth, Tex., LB. **$173,802,** flexible base, one course surf. tr. and b. conc. pavement 6.09 mi. Hy. U.S. 69, Proj. C 202-13-3, Grayson and Fannin Counties;
Austin Road Co., Box 1590, Dallas, Tex., LB. **$552,353.** roadbed tr. and c. conc. 8.377 mi. Hy. U.S. 77, Proj. F 117 (7), Denton Co.;
John T. Leslie, 5513 E. Grand Ave., Dallas, Tex., LB. **$81,545,** grading, structures, base, surf. 5.084 mi. Hy. FM 1629, Cooke Co. Bids July 16. CD 6/26, 7/2 and 7/8.

BUILDINGS

LOW BIDS AND CONTRACTS

Dick Diekema Constr. Co., Albert Lea, Minn., CA. **$500,000.** general contract 71,000 sq. ft. PLANT, Incl. 3 bldgs., ALBERT LEA, MINN. Rilco Laminated Products Co., assoc of Weyerhaeuser Sales Co., Albert Lea, Minn.
Gilbert Constr. Co., 5601 Airline St., Houston, Tex., CA. Approx. **$300,000.** Job 4, 38 DWELLINGS, HOUSTON, TEX. Ben A. & Earl N. Gilbert, 5601 Airline St., Houston, Tex. CD 3/5.
Whipple Constr. Co., 2436 Bissonnet St., Houston, Tex., Owner Builds. **$400,000.** Job 3, 80 RESIDENCES, Victoria St., HOUSTON, TEX. CD 3/25.
David Hannah & Assoc., 800 Main St., Houston, Tex., Owner Builds. **$390,000.** 45 DWELLINGS, HOUSTON, TEX. CD 4/10.
Quincy Lee Constr. Co., 211 Olmes Dr. West, San Antonio, Tex., Owner Builds. **$420,000.** Unit 5, 58 DWELLINGS, SAN ANTONIO, TEX. CD 3/6.
Sunnyside Heights Development Co., 2305 Holliday St., Wichita Falls, Tex., Owner Builds. **$395,000.** Job D, 100 low-cost DWELLINGS, WICHITA FALLS, TEX. CD 3/28.

FAR WEST

BIDS ASKED—BUILDINGS

Calif., Walnut Creek—HOSPITAL—B.A. 8/8—Permanente Hospital Foundation, Broadway and MacArthur Sts., Oakland, 75-bed hospital. Clarence W. Mayhew, 251 Post St., San Francisco, archt. CD 7/11.

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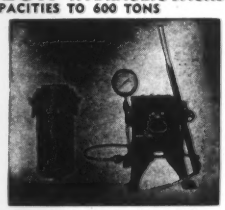

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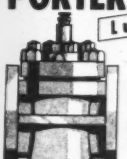

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(Continued from page 90)

▲ Calif., Los Angeles—LIFE SCIENCES—B.A. 8/12—University of California, 405 Hilgard Ave., 5 story, rein.-con. life sciences bldg. $1,500,000. Plans deposit $300. Marsh, Smith & Powell, 208 W. 8 St., archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Bishop, Younger & Bradley,** 405 Sansome St., San Francisco, Calif., CA. $679,311, AAG transmitter station, near here, Spec. 1624, DAVIS, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids May 28, awarded July 10. CD 6/4, under LB

BUILDINGS

LOW BIDS AND CONTRACTS

Peter Kiewit Sons' Co., 442 Post St., San Francisco, Calif., LB. $595,297 relocate and modify INDUSTRIAL BLDGS. to make way for new freeway, EMERYVILLE, CALIF. Pabco Products, Inc., Emeryville, Calif. Earl & Wright, 233 Sansome St., San Francisco, engrs.

Tombleson & Huck, P.O. Box 1388, Salinas, Calif., CA. $397,789, SCHOOL addns., KING CITY, CALIF. King City Joint Union High School District, King City, Calif. Awarded July 11. CD 1/9.

▲ **Indenco,** 960 98 Ave., Oakland, Calif., CA. $1,151,958. Pleasant Hill High SCHOOL, PLEASANT HILL, CALIF. Mt. Diablo Unified School Dist., Grand St., Concord, Calif. Bids June 24, awarded July 10. CD 5/27.

▲ **M. H. Golden Constr. Co.,** 3485 Noell St., San Diego, 1, Calif., CA. $1,084,710, rein.-con. MANUFACTURING Bldg., Camp Anza, RIVERSIDE, CALIF. Rohr Aircraft Corp., Chula Vista, Calif. Quinton Engineers, 816 S. Figueroa St., Los Angeles, Calif., engrs. CD 5/8.

Flowers & Shirley, Tulare, LB. $363,500, combined bid East Union and Union SCHOOLS, VISALIA, CALIF. County Supt. Schools, Bin 911, Visalia, Calif. Bids July 9.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

▲ Ont., Aylmer—RESERVOIR, etc.—B.A. 8/6—Defence Constr. Ltd., 441 Queen's Quay W., Toronto, water storage reservoir, sewage treatment plant, storm sewers, R.C.A.F. Station. $1,000,000. Plans deposit $100. R. P. Opie, regional engr. CD 7/5/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Keystone Contractors Ltd., c/o owner, CA Approx. $849,929. constr. West Nepeau Collector Sewer, part of Sect. C, OTTAWA, ONT. City, Mayor C. Whitton, Ottawa, Ont. Bids Apr. 29. CD 4/2.

BUILDINGS

LOW BIDS AND CONTRACTS

R. G. Kirby & Sons, Ltd., 539 Yonge St., Toronto, Ont. CA $600,000. FACTORY, Warden Ave., TORONTO, ONT. Exide Batteries of Canada Ltd., 153 Dufferin St., Toronto, Ont. Bids July 4, awarded July 15. CD 6/26.

A. Bianchi & Son, 430 S. Roch St., Montreal, Que., CA $500,000. 4 story, 100x150 ft., concrete, brick, stone APARTMENT, Victoria St., HULL, Que. W. D. St. Cyr, 68 Notre Dame St., Hull, Que. P. Colangelo, 3710 Cote Ste. Catherine Rd., Montreal, Que., archt.

▲ **Fluor Corp.,** 2500 S. Atlantic Blvd., Los Angeles, Calif., CA Est. $7,000,000. Oil REFINERY expansion, on 225 acre site at north end of REGINA, SASK. Imperial Oil Ltd., 56 Church St., Toronto, Ont. R. W. Dunlop, c/o owner, eng. div. engr. Awarded July 14. CD 2/25.

Proposed Projects

WATER SUPPLY

Ala., Tuscumbia—City, WW imprvs. $250,000. T. Hoyt Ellis, Brown-Marx Bldg., Birmingham, consult. engr.

▲ O., Cleveland—City, City Hall, Zone 14, water main. 36 in. connecting to 24 in. to be constructed from airport west to city of North Olmsted, $1,000,000. Frank J. Schwemler, Comr. Utilities Eng., city engr. CD 12/10/43.

Okla., Norman—City, City Hall, impounding reservoir water supply. $500,000. Ben Schulz, c/o owner, engr.

▲ Wyo., Casper—City, $1,500,000 bond election Aug. 19, expanding, imprv. municipal water system. CD 1/9.

SEWERS, WASTE DISPOSAL

Ill., Pekin—City, City Hall, sanitary sewer, lateral, $300,000. Crenshaw & Jost, 512 Court St., Pekin, consult. engrs. CD 6/28/51.

▲ Minn., Richfield (Minneapolis P.O.)—Village, L. Trafton, clk., storm and sanitary sewerage sys., $1,000,000. G. M. Orr Eng. Co., 1004 Marquette Ave., Minneapolis, consult. engr. CD 1/30/51.

▲ N. Y., Syracuse—City, City Hall, sewage treatment works. $10,000,000. Greeley & Hansen, 220 S. State St., Chicago 4, Ill., and O'Brien & Gere, 204 E. Jefferson St., Syracuse, consult. engrs. CD 1/19/51.

▲ O., Dayton—City, City Hall, sewage treatment works extension. $1,000,000. Alvord Burdick & Howson, 20 N. Wacker Dr., Chicago 6, Ill., consult. engrs. CD 12/6/51.

(Continued on page 94)

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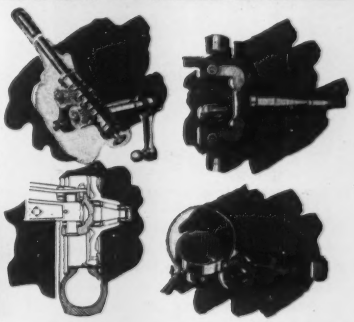

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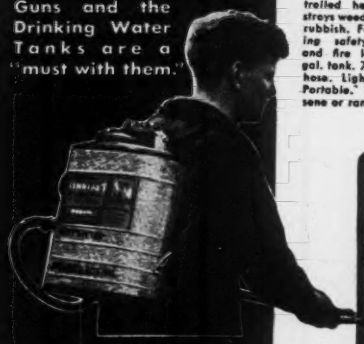

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(Continued from page 92)

▲ O., Cleveland—City, City Hall, Zone 14, plans by Havens & Emerson, consult, engrs. and archts., Leader Bldg., Zone 14, aeration and sludge settling tanks and necessary supporting bldgs. and appurtenances at Southerly Sewage Disposal Plant, Cuyahoga Heights. $6,000,000. George Flower, City Comr. of Sewage Disposal, City Hall, engr. CD 12/13/43.

Tenn., Jackson—City, sanitary sewer imprvs. $400,000.

Tex., Bovalle—City, A. Ullrich, plant supt., Bovalle, sewage disposal plant. $400,000.

BRIDGES

▲ Calif., Glendale—City, City Hall, constr. Southern Pacific R.R. underpass, $1,493,200. J. C. Albers, 120 N. Howard St., Glendale, engr.

Ill., Chicago—City, City Hall, Congress St. Superhighway bridges and approaches over Northwest Route Highway at Basic Interchange point, $400,000.

Tex., San Antonio—Missouri Pacific R.R. Co., W. H. Hobbs, ch. engr. System, Missouri Pacific Bldg., St. Louis 3, Mo., underpass in Colima-Guadalupe St. area. $450,000.

Wash., Yak.ma—City, City Hall, bond election Sept. 9, Lenox Ave. railroad overpass, $4,000,000. H. Hadley, Seaboard Bldg., Seattle, Zone 1, consult. engr. A. B. Collins, city engr. CD 7/17/50.

STREETS AND ROADS

O., Cleveland—Cuyahoga Co., Court House, 52 ft. concrete paving approx. 8,500 ft., Ridge Rd. between Brookpark and Memphis Rds., incl. removing old pavement, grading, storm sewer alterations, etc. $680,000. Albert S. Porter, Standard Bldg., Cleveland, Zone 13, co. engr. CD 11/13/51.

EARTHWORK, WATERWAYS

▲† Iowa—U. S. Eng., Rock Island, Ill., Lock No. 19 at Mississippi River, near Keokuk. $1,000,000.

▲† Kansas—U. S. Eng., 601 Davidson Bldg., Kansas City 8, Mo., Tuttle Creek Dam Big Blue River, north of Manhattan, Riley and Pottawatomie Counties. $5,000,000 for 1952-53. CD 6/1/44.

▲ Wash., Centralia—City, City Hall, Yelm hydro-electric plant addn. $1,500,000.

▲† Wash., Edmonds—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, small-boat basin. $2,000,000.

AIRPORTS

† D. C., Wash.—HOUSING FACILITIES, etc.—U. S. Eng., 1 and Douglas Sts. N.W., Wash., D. C., troop housing facilities, utilities, storage facilities at Bolling Air Force Base. $560,000.

▲† Md., Patuxent River—RESEARCH, DEVELOPMENT and TEST FACILITIES—Dist. P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C., addnl. research, development and test facilities, operational facilities and supporting facilities, Naval Air Test Center, $4,337,000.

▲† Neb., Lincoln—AIR BASE—U. S. Eng., 1709 Jackson St., Omaha, reactivation of Lincoln Air Force Base. $9,092,000.

▲ Wash., Yakima—AIRPORT EXPANSION—City, City Hall, $200,000 bond election Sept. 6, expansion of airport $1,000,000. A. B. Collins, city engr. CD 6/10.

LATIN AMERICA

Mexico, Merida—Antonio Bayarte, c/o Gov. Marentes, Palacio del estado, Merida, Yuc., plans cellulose factory. $500,000.

Mexico, Mexico City—Carlos Azcue Mancera, Altamirano, 130 plans 15 story office-store bldg. $750,000. Ing. Luis Azcu Y. Mancera, 12 de octubre, 115 Mexico City, engr.

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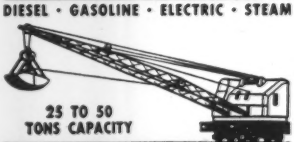

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PUBLIC BUILDINGS

Ala., Scottsboro—HOSPITAL—City, plans by Charles H. McCauley, Jackson Bldg., Birmingham, hospital. $700,000.

▲ Ala., Tuscaloosa—HOSPITAL—District II T B Sanatorium, Tuscaloosa, plans by Wm. I. Rosamond, Tuscaloosa, TB hospital. $1,500,000.

▲ Calif., Long Beach—SCHOOL—Long Beach School District, 715 Locust Ave., plans by Palmer W. Power, 519 Ocean Center Bldg., 19,421 sq. ft. frame, stucco Edward P. Cubberly school, $360,000; plans by Jess J. Jones, 1870 American Ave., auditorium at Long Beach City College, $950,000. CD 11/16/50.

Calif., Napa—HIGH SCHOOL—Napa Un. High School Dist., Napa, plans by John Lyon Reid, 1069 Market St., San Francisco, Junior High School. $600,000. CD 4/28.

Calif., Pixley—SCHOOL—Pixley Union Elementary School Dist., Box 303, plans by Coats & Metz, Helm Bldg., Fresno, school. $575,000.

Conn., Middletown—HOSPITAL—State P. Wks. Comr., State House, Hartford. 3 story, brick, steel, concrete employees bldg. $550,000; imprv. water facilities, Connecticut State Hospital, $160,000. CD 2/7/49.

† D. C., Wash.—LABORATORY—Dist. P. Wks. Office, Potomac River Naval Command, Naval Gun Factory chemistry laboratory and modernization of electrical distr. sys. at Naval Research Laboratory, Anacostia, $500,000.

† D. C., Wash.—OPERATIONAL FACILITIES, etc.—U. S. Eng., First and Douglas Sts. N. W., Wash., D. C., operational facilities, research and development facilities at Walter Reed Army Medical Center. $731,000.

▲ Idaho, Moscow—LIBRARY—University of Idaho, Moscow, plans by Whitehouse & Price, Hutton Bldg., Spokane, Wash., library. $2,000,000. CD 6/9.

▲ Ill., Chicago—SCHOOL—Bd. Educ., 228 N. LaSalle St., Zone 1, plans by Schmidt, Garden & Erikson, assoc. archts., 104 S. Michigan Ave., Zone 3, Skinner Elementary School, Throop and Adams Sts. $1,750,000. CD 3/15/51.

Ill., Mantena—SCHOOL—School Dist. 5, Mantena, plans by Kruegel & Wilkins, 9 E. Clinton St., Joliet, high school, $500,000.

▲ Mass., Somerville — HOUSING — Somerville Housing Auth., 139 Alwife Brook Parkway, plans by M. A. Dyer, 24 School St., Boston, 3 story housing, Proj. PHA 31-1, Mystic Ave. $2,500,000. CD 4/25.

▲ Minn., St. Louis Park—SCHOOL—Bd. Educ., R. C. Fernstrom, clk., high school, west of Dakota Ave. north of Minneapolis, Northfield and Southern Ry. tracks, south of W. 33 St., $2,000,000. CD 8/23/51.

Neb., Kearney—VOCATIONAL ARTS—State Normal Bd., Lincoln, plans by John Latenser & Sons, 1307 Farnam St., Omaha, vocational arts bldg. at Kearney State Teachers College. $700,000. CD 12/30/46.

N. H., Portsmouth—HOUSING—City, Edward C. Peterson, mgr., City Hall, housing. $500,000.

▲ N. J., Trenton—RAMP GARAGE—Trenton Parking Auth., Lafayette Yard, Trenton, ramp garage, $2,000,000.

▲ N. Y., New York—COURT HOUSE—Dpt. P. Wks., Municipal Bldg., Zone 7, plans by Rogers & Butler, 219 E. 44 St., Zone 17, Proj. PW-141, 6 story Appellate Division Courthouse addn., 27-33 Madison Ave. $1,184,761.

▲ O., Akron—CITY HALL, etc.—City, City Hall, jail and city hall. $4,000,000-$6,000,000.

O., Rocky River—CITY HALL, FIRE and POLICE STATION BLDGS.—City, City Hall, 19120 Detroit Rd., bond election Nov. 4, city hall, fire and police station bldg., Hilliard and Wagar Rds. $750,000.

Tenn., Waverly—HOUSING—Waverly-Camden Housing Auth., Waverly, 100 housing units, $600,000.

Tex., Dickinson—SCHOOL—Dickinson Independent School Dist., Dickinson, voted $500,000 bonds, school. Wyatt C. Hedrick, 5201 Fannin St., Houston, archt. CD 2/15.

▲ Tex., Fort Worth—SCHOOLS—Fort Worth Independent School Dist., 409 E. Weatherford St., voted bonds, Alice E. Carlson Elementary School, $425,000; plans by W. G. Clarkson Co., 819 Penn St., Oakhurst Elementary School, $400,000; Sagamore Elementary School, $575,000; plans by Robert P. Woltz, Jr., Dan Waggoner Bldg., Oak Knoll Elementary School, $500,000; plans by Birch D. Easterwood, Bewley Bldg., Dillow Elementary School, $600,000; plans by Wyatt C. Hedrick, 1005 First Natl. Bank Bldg., Blouebonnet Elementary School, $750,000; plans by Earl T. Glasgow, Electric Bldg., Morningside Elementary School, $550,000; plans by Wilson & Patterson, Majestic Bldg., Mary Louise Phillips Elementary School, $350,000. CD 6/3.

Tex., San Antonio—POST OFFICE SUB-STATION—J. M. Odom, c/o Dallas Hy., Austin, Tex., post office substation between S. Main St. and Dwyer Ave. $500,000. Dpt. Post Office, Wash., D. C., lessee.

▲† Va., Fort Belvoir—ADMINISTRATIVE, etc.—U. S. Eng., First and Douglas Sts. N. W., Wash., D. C., administrative, operational and maintenance facilities, training bldgs., covered ammunition and open storage, research and development and test facilities, utilities. $2,968,000.

Wash., Bremerton—SCIENCE—School District 100-C, Bremerton, plans by Branch & Branch, 2616 E. 11 St., science bldg., initial unit of Olympic Junior College, $750,000. CD 10/22/51.

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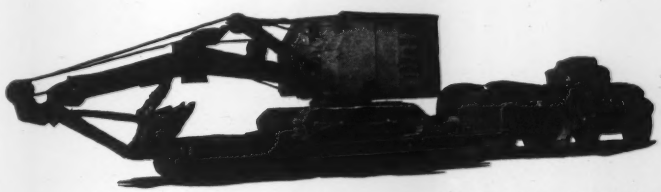

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▲ **Wash., Moses Lake**—HOSPITAL—Moses Lake Hospital District, Moses Lake, hospital, **$1,125,000.**

Wash., Seattle—SCHOOL—Shoreline School District 410, N 137 and Roosevelt Way, Seattle, plans by John Graham & Co., Dexter Horton Bldg., Seattle, Zone 4. Olympic Hill Elementary School, **$500,000.** CD 6/30.

Wash., Whidbey Island—HOUSING—Housing & Home Finance Agency, Normandy Bldg., 1626 K St. N.W., Wash., D. C., 200 trailer housing units for military and civilian defense personnel at naval base, **$800,000.**

Wis., Chippewa Falls—FOOD SERVICE—State Dpt. P. Welfare, Madison, plans by R. C. Kirchhoff, state archt., Madison, 2 story, 135x270 ft., food service bldg. at Northern Colony and Training School. **$750,000.**

▲ **Alaska, Anchorage**—HOSPITAL—City, City Hall, hospital. **$1,500,000.**

COMMERCIAL BUILDINGS

Ala., Birmingham—OFFICE—Liberty National Insurance Co., c/o Van Keuren, Davis & Co., archts., 3004 7 Ave. S., office bldg. **$500,000.** Union Carbide & Carbon Corp., lessee.

Calif., Palo Alto—CLINIC—Palo Alto Clinic, 300 Homer Ave., plans by Clark & Stromquist, 321 Channin Ave., clinic bldg. **$550,000.**

▲ **Calif., Palo Alto**—SHOPPING CENTER—Stanford University, Palo Alto, plans by Welton Beckett & Assoc., 3455 19th Ave., San Francisco, shopping center on 60-acre university property on El Camino Real between Palo Alto Hospital and San Francisco Creek. **$7,000,000.**

▲ **Fla., Jacksonville**—OFFICE—Prudential Insurance Co., 763 Broad St., Newark, N. J., office on 18-acre tract on south side of St. John's River, between Acosta Bridge and Gilmore St. Bridge Expressway, **$3,500,000.**

Idaho, Idaho Falls—HOUSES—Robert Johnson Assocs., 900 Elva St., 122 houses. **$600,000.**

▲ **Ia., Davenport**—SHOPPING CENTER—Eagle Market Centers, Inc., Hy. 6 and Division St., shopping center **$1,000,000.**

Mass., Stoughton—HOUSES—Charlesdale Corp., Corkin Bldg., Randolph, 50 houses, off Pearl St. **$600,000.**

Mich., Charlotte—HOSPITAL—Hayes-Green-Beach Hospital, Miss. Helen Mahaffey, supt., Charlotte, 2 or 3 story, brick hospital addn. **$600,000.**

▲ **Mo., Jennings** (St. Louis 20, P. O.)—SHOPPING CENTER—Northland Shopping Center, Inc., G. J. Nooney, pres., Shell Bldg., 1221 Locust St., St. Louis, Zone 3, plans by Russell, Mullgardt, Schwarz & Van Hoefen, 1620 Chemical Bldg., 721 Olive St., St. Louis, Zone 1, shopping center, incl. 9 buildings of various sizes totaling 1,000,000 sq. ft. floor space,

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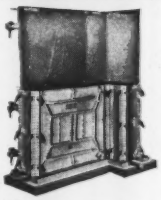

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parking facilities, West Florissant Ave. Lucas and Hunt Rds. $10,000,000. CD 6/12.

▲ **N. J., Newark**—OFFICE—Prudential Insurance Co. of America, 763 Broad St., office. $3,000,000.

▲ **N. J., Paterson**—OFFICE, etc.—Lio Arms Realty Corp., c/o Peter H. Holley, archt., 195 Van Houten St., 7 story office and 13 story parking garage, on site bounded by Market St., Ward St. and Railroad Ave. $10,000,000.

N. Y., Bellaire—HIGH SCHOOL—St. Pascal Babylon Roman Catholic Church, 122-35 199 St., plans by Anthony DePace, 151 W. 46 St., New York, Zone 19, 3 story 58x198 ft. high school, 112 Ave. between 199 and 200 Sts. $900,000.

▲ **N. Y., Brooklyn**—APARTMENTS—Kings Oaks Terrace Co-operative Apartments Corp., 17 Neptune Ave., Zone 29, plans by Seelig & Finkelstein, 153 Pierrepont St., Zone 2, two apartments, 915 E. 7 St. and 840 E. 8 St. $1,176,000.

▲ **N. Y., New York** — APARTMENT — Delegart Realty Corp., 407 E. 55 St., plans by Boak & Raad, 175 Fifth Ave., Zone 10 (second sect.) 19 story apartment, 442-444 E. 56 St. $1,000,000. Sidney Frieman, 350 Broadway, Zone 13, engr.

▲ **N. Y., New York**—APARTMENT—Heath Arms, Inc., 2601 Sedgwick Ave., Zone 63, plans by Tito Di-Vincenzo, 254 W. 54 St., Zone 19, 6 story apartment, east side of Kingsbridge Terrace, south of Kingsbridge Rd. $1,000,000.

▲ **O., Fairview Park**—SHOPPING CENTER—Westgate, Inc., 1010 Euclid Bldg., Cleveland, Zone 14, plans by Raymond Loewy & Assoc., 488 Madison Ave., New York, N. Y., 40-unit masonry shopping center at Center Ridge Rd. and W. 210 St. on 66-acre site, $8,000,000. Dominic Visconsi, c/o owner, engr.

▲ **O., Mayfield Heights**—SHOPPING CENTER—Anthoni Visconsi, 1010 Euclid Bldg., Cleveland, Zone 14, plans by Matzinger & Grosel, consult. engrs. and archts. The Arcade, Cleveland, Zone 14, consult. engr. and archt., 24-unit masonry, shopping center at Mayfield and SOM Center Rds. on 50-acre site. $3,500,000.

O., Toledo—HOUSING—Robert C. and Catherine Ragan, Edison Bldg., 36 homes in Creekside Glen Subdivision, on east side of Holland-Sylvania Rd. north of Perrysburg-Holland Rd., Springfield Twp. $700,000.

▲ **Tex., Amarillo**—SHOPPING CENTER—Charles Wolfin, 2501 Wolfin Blvd., plans by Robert E. Hucker, Johnson Bldg., 1 story, brick, masonry, 110,000 sq. ft. shopping center, Wolfin Blvd. and Georgia St., incl. parking area for 700 cars. Approx. $2,000,000.

▲ **Tex., Fort Worth**—SHOPPING CENTER—A. C. & J. T. Luther and Earl Wilson, 6300 Camp Bowie Blvd., plans by Charles T. Armstrong, Majestic Bldg., shopping center, incl. 2 story brick professional bldg.; 2 story, brick Luther Quandrangle addn.; 1 story 98,000 sq. ft. shopping center, in Ridglea addn. $1,000,000.

▲ **Tex., Houston**—DWELLINGS—B. F. Sturman, 204 Winkler Dr., eighteen 1 and 2 story dwellings, $450,000; ten 3-bedroom dwellings, $350,000; five 2 story masonry type dwellings, air-conditioning, $375,000; 15 ranch type masonry dwellings, $440,000; 25 semi-permanent type dwellings, $600,000.

▲ **Tex., Waco**—DORMITORY—Baylor University, Dr. W. R. White, pres., 1401 S 5 St., plans by Easterwood & Easterwood, 601-2 Service Mutual Bldg., three story, bsmnt., masonry women's dormitory (320) $1,000,000. R. S. Smith, T. & P. Bldg., Fort Worth, consult. engr. Leonard Canton, N. P. Anderson Bldg., Fort Worth, mech. engr. CD 6/12.

INDUSTRIAL BUILDINGS

Calif., San Francisco—FACTORY—Planters Nut & Chocolate Co., 530 Davis St., 5 story factory addn. $800,000. H. J. Brunnier, Sharon Bldg., consult. engr.

▲ **Fla., Frostproof**—PLANT—Clinton Foods, Inc., Dundin, citrus concentrate plant, $1,000,000.

▲ **Ga., Columbus** — PLANT — Sunshine Biscuits, Inc., Thomson Ave., Long Island City, N. Y., plant. $5,000,000.

▲ **Ia., Bettendorf**—FACTORY—Aluminum Co. of America, Gulf Bldg., Pittsburgh, Pa., factory, $5,500,000.

Kan., Kansas City—PLANT—Standard Oil Co., c/o Harold E. Purdy, local mgr., 40 and Main Sts., Kansas City, Mo., expansion of bulk unit, incl. 2 new bldgs., remodeling, on 9 acres on Kansas Ave. in Armourdale Dist. $500,000.

▲ **N. Y., Long Island City**—FACTORY, etc.—Shorewood Realty Co., c/o Ingram S. Carner, archt., 71-11 Austin St., Forest Hills, 1 story, 100x219 ft. factory, storage and office bldg. on east side 47 St., north of Midtown Hy. $1,000,000.

▲ **N. C., Spray**—PLANT—Union Carbide & Chemical Co., 30 E. 42 St., New York, N. Y., synthetic fiber plant to mfg. dynel, site selected, 815 acres on Dam River between Draper and Spray. $30,000,000. CD 12/17/51.

O., Toledo—FACTORY—Owner, c/o Howard F. Crosby, Crosby Realty & Mortgage Co., 717 Madison St., 1 story 100,000 sq. ft. factory, with 600-car parking field at Manhattan and Wausonquette Blvds. facing Summit St. $800,000.

Tenn., Rockwood—MILL—Roane Lumber & Mfg. Co., Rockwood, rebuild mill. $500,000.

▲ **Tex., Baytown**—STORAGE and PLANT—Humble Oil & Refining Co., Baytown, storage for products of

(Continued on page 99)

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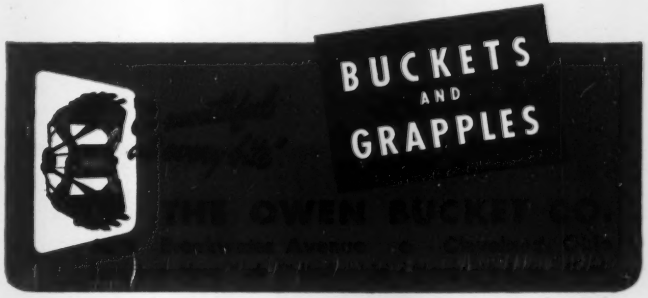

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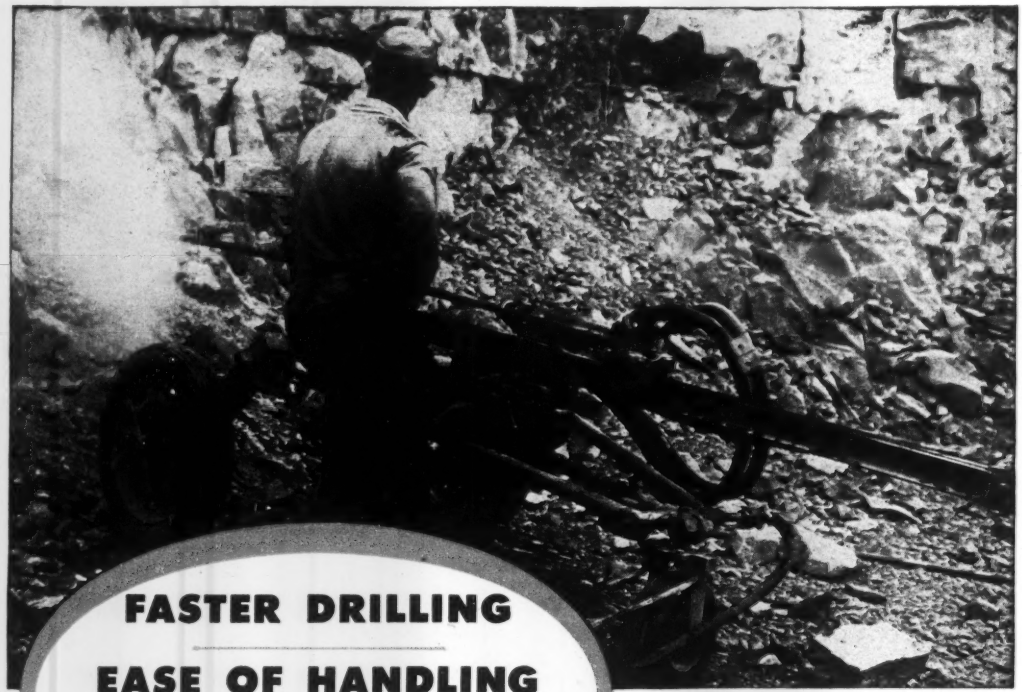

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(Continued from page 97)

deasphalting plant. $500,000; propane deasphalting plant, $5,000,000.

▲ Tex., Freeport—PLANT—Dow Chemical Co., Freeport, ethylene plant. $6,675,000. CD 4/6/51.

▲ Tex., Hondo—GENERATING PLANT—Medina Electric Co-operative, Hondo, 13,500 kw. electric generating plant, near here. $3,000,000. REA allot. 7/31/52.

Tex., Houston—STORAGE—Sinclair Refining Co., Commerce Bldg., petroleum storage, $647,000. CD 5/9/47.

▲ Utah, Garfield—PLANT—American Smelting & Refining Co., Garfield Chemical & Mfg. Co., and Stauffer Chemical Co., c/o Garfield Chemical & Mfg. Co. Pacific Natl. Life Bldg., Salt Lake City, phosphat fertilizer plant. $5,000,0000.

UNCLASSIFIED

▲ Arkansas—GAS LINE, etc.—Arkansas-Louisiana Gas Co., Slattery Bldg., Shreveport, La., 6 mi. line and compressor station, Hot Springs, Garland Co. $2,353,116. CD 7/10/46.

▲ California—RAILROAD BY-PASS—Southern Pacific R.R., 612 S. Main St., Los Angeles, construct railroad by-pass line from Puente to Los Angeles Harbor requiring 8.6 mi. new track and several bridges, Los Angeles Co. $4,300,000.

Fla., Miami—MAUSOLEUM—Flagler Memorial Park, 5301 W. Flagler St., plans by B. Robert Swartburg, 126 24 St., Miami Beach, mausoleum. $550,000.

Fla., Miami—MAUSOLEUM—Star of David, c/o B. Robert Swartburg, archt., 126 24 St., Miami Beach, mausoleum. $450,000.

Iowa—TRANSMISSION LINE—L. & O. Power Co-operative Rock Rapids, Ia., 73 mi. 69 kv transmission line Rock Rapids Co. $503,000.

Iowa—RURAL DISTRIBUTION LINES—Southeast Iowa Co-operative Electric Assn., Warner A. Russell, mgr., Mount Pleasant, 35 mi. rural distr. lines, 45 mi. tie lines; 28 mi., 69 KV transmission lines and other sys. imprvs., Proj. Iowa 69M Henry. $628,000. Stanley Eng. Co., Hershey Bldg., Muscatine, consult. engr. CD 2/14/49.

Minnesota—RURAL DISTRIBUTION LINES—Lyon-Lincoln Electric Co-operative, Tyler, 68 mi. rural distr. lines, 7 mi. transmission lines, sys. imprvs., Lincoln Co. $300,000. CD 12/1/49.

▲ Missouri—RURAL DISTRIBUTION LINES—White River Valley Co-operative, Hollister, 444 mi. rural distr. lines, sys. imprvs., Taney Co. $1,034,000.

North Carolina—RURAL DISTRIBUTION LINES—Lumbee River Electric Membership Corp., Red Springs, 100 mi. rural distr. lines, sys. imprvs., incl. 23 mi. new tie lines, NC 51L Hoke, $570,000. CD 5/22/50.

Okla., Tulsa—FAIRGROUND BLDGS.—Tulsa Co., Court House, fairgrounds bldgs. at County Fair Grounds. $610,000. David R. Graham, 2919 E. 44 St., consult. engr. CD 3/5.

South Dakota—RURAL DISTRIBUTION LINES—Moreau-Grand Electric Co-operative, Timber Lake, 479 mi. rural distr. lines, acquisition of distr. facilities and 35 mi. transmission lines, Dewey Co. $950,000. Scott Eng. Co., Watertown, consult. engr.

▲ Tenn., Clarksville—GAS SYSTEM—City, Clarksville, bond election August 19, natural gas sys., $2,000,000. Barnard & Burk, 1023 Nicholsen Dr., Baton Rouge, La., consult. engrs. CD 4/27/51.

▲ Tenn., Knoxville — ELECTRIC SYSTEM — Knoxville Utilities Bd., 626 S. Gay St., electric sys. imprvs., $1,250,000.

Tex., Amarillo—ANTENNAE and TRANSMITTER—Plains Broadcasting Co., c/o Tom Kirtzer, mgr., 8 and Harrison Sts., plans by Robert E. Hucker, Johnson Bldg., television antennae and transmitter, 833 ft. tower req. 200 tons steel and transmitter bldg. $520,000.

▲ Washington—RURAL DISTRIBUTION LINES—Benton Rural Electric Assoc., Prosser, Mich., 268 mi. electric distr. line, 8 mi. transmission line and sys. imprvs. Benton Co. $1,500,000. CD 8/8/49.

Wyoming—RURAL DISTRIBUTION LINES, etc.—Shoshone River Power, Inc., Cody 20 mi. electric distr. line, 128 mi. transmission line, sys. impvs. and completion of previously approved construction, Shoshone Co. $950,000.

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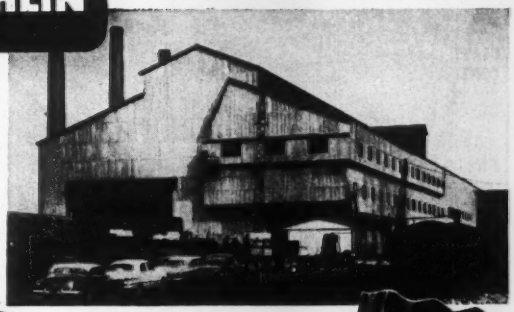

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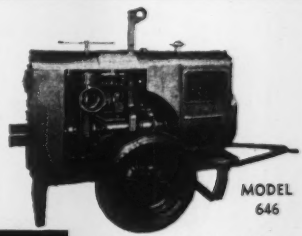

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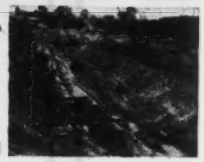

BUILDINGS

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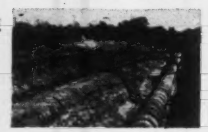

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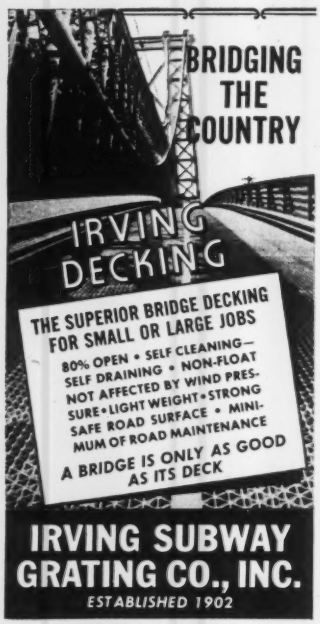
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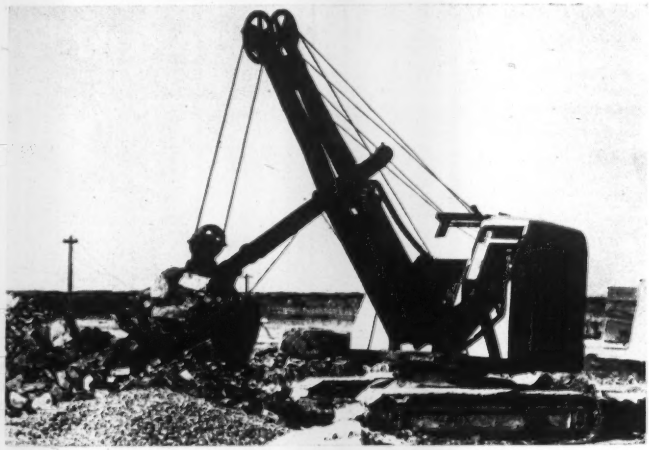


New Gar Wood on tracks or rubber

Power-actuated drum clutches, direct right-angle drive, optional hydraulic coupling and the new foundation borer attachment are the chief features of the new Gar Wood 75 standard and heavy-duty ¾-yd excavator. The new Gar Wood uses the engine's power to engage all its heavy-duty clutches. The exclusive right-angle drive transmits power through a universal coupling and reduces fuel consumption by insuring a smooth flow of power while eliminating noise, maintenance, slack and back-lash problems of chain drives. An optional hydraulic coupling absorbs shock loads and, in combination with the power-actuated clutches and direct drive, retains the "feel" for smooth performance.

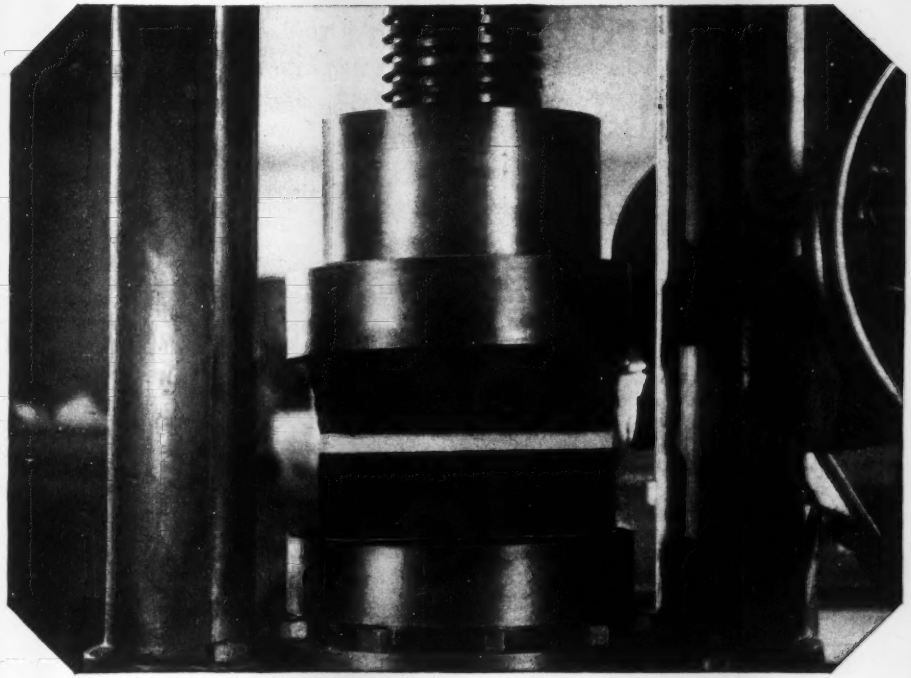
Completely convertible in the field to shovel, crane, dragline, clamshell, trench hoe or pile driver, the Gar Wood 75 is also offered as a 20-ton truck crane mounted on a 6x6 or 6x4 chassis. Other features include an all-welded, box section machinery deck; self-cleaning, non-clogging crawler tracks and a safety-locking, worm driven boom hoist. Steering and dipper trip have vacuum controls. FINDLAY DIVISION, GAR WOOD INDUSTRIES INC., FINDLAY, OHIO.

Gyro-Flo comes in three smaller sizes

Ingersoll-Rand has rounded out its line of radically new Gyro-Flow portable compressors with three sizes in addition to the original 600 cfm model. The introduction of 315, 210 and 105 cfm units makes the advantages of the rotary sliding-vane design available for a much wider range of operating requirements. Major benefits are simplicity and low operation cost, low maintenance and greater reliability. Smaller dimensions, greatly reduced rate and discharge temperatures at least 100 degrees lower than conventional portables are other important advantages, according to the manufacturer.

The two-stage, oil-cooled rotary sliding-vane compressor design of the machine eliminates most of the problems of reciprocating units for portable service. There are no valves to leak, no pistons, rings, rods or clutch to wear. Air, discharged at less than 200 degrees under normal operating conditions, together with thorough oil separation, eliminates hose deterioration caused by heat and oil. The continuous rotary action provides a steady flow of air without pulsations or vibrations.

The new smaller units are equipped with Air Glide capacity control, a stepless system that controls air output smoothly over the full range from 0 to 100% capacity. This combines variable intake unloading of the compressor and "Floating Speed" control



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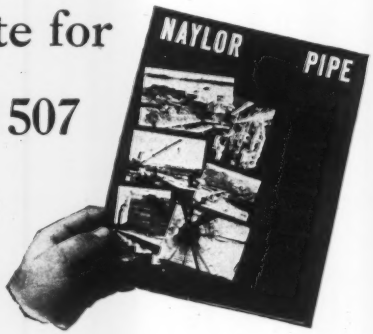

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350 Madison Ave., New York 17, N.Y.

of the engine. Throughout the entire capacity range, the air pressure stays between 100 and 110 psi, assuring uniform work and better production with drills and other air-powered tools.

The 600 cfm model is powered by a General Motors diesel engine and the 105 uses a Continental Red Seal gas engine. The 315 and 210 can have either type. Easy maneuverability is attested to by the weights which run from 9500 pounds for the 600 to only 2630 pounds for the 105. INGERSOLL-RAND COMPANY, DEPARTMENT PC, 11 BROADWAY, NEW YORK 4, N. Y.

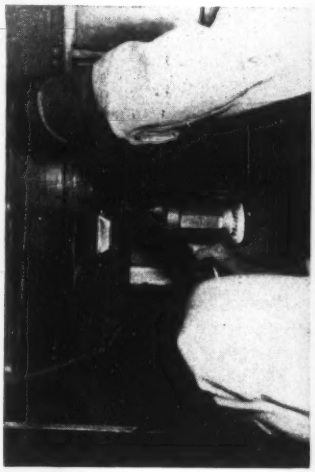
Plaster-mortar mixer can be moved indoors

This new Kwik-Mix 3-P tilting plaster-mortar mixer has 3 to 4-ft capacity and its 29-in width clears even narrow doorways for work indoors. A low 37-in shoveling height makes charging easier and its wide-base pneumatic tires add to general stability and flotation. There's also a simple de-clutching system for fast engine starting. The new 3-P has four non-clogging sawtooth blades which the manufacturer says produce a perfect texture mix. Countershaft and paddle shaft bearings are antifriction type and lifetime-lubricated. A 3-hp air-cooled engine supplies power through multiple V-belts. KWIK-MIX COMPANY, PORT WASHINGTON, WISCONSIN.

Thermoid consolidates its 18 hoses to 5 basic types

The eighteen different types of molded hose offered heretofore by the Thermoid Co. have been consolidated into five basic types, color coded for easy identification. **Versaflex** is the company's most versatile hose and can handle pressures up to 800 psi. It's recommended for booster pump-

as well as for transmission of petroleum products under pressure. Its color is red. **Versicon** has a brown identifying color and can serve nearly all industrial uses up to 300 psi, including use with air-powered tools. **Aquair**, a green-colored hose, is recommended for conducting water, oxygen, air or acetylene up to 200 psi. **Utility** is a black hose for working pressures up to 125 psi for air-operated tools and water up to hydrant pressure. Finally, **Powerflex** steam hose is specially designed for superheated steam at pressures up to 200 psi. Steel wire braids and asbestos braided yarn reinforce the hose and dissipate heat of steam respectively. Thermoid will continue to offer, in addition, its wrapped and mandrel-built hose. THERMOID COMPANY, TRENTON, NEW JERSEY.



New electric drills meet individual needs

A new line of portable electric drills incorporating three design styles with seven speeds are said to solve practically all types of installation problems in metal, wood, plastic or combination materials. These ¼-in. capacity drills are available with pistol grip, spade handle and center contour handle design in free drilling speeds of 600, 800, 1000, 1750, 2500, 3500 and 5000 rpm. Weighing only 3½ to 4 lb, they are of aluminum construction with balanced armatures and precision matched gears to reduce vibrations. All three models have ac-dc motors and can be had for 115 or 230 volts, 25 to 60 cycle current. MALL TOOL COMPANY, 7740 SOUTH CHICAGO AVENUE, CHICAGO 19, ILLINOIS.

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EDITORIALS

The incentive to build

THE DEPRESSING EFFECT of unreasonably high taxes on the ability of individuals and business enterprises to undertake needed construction has been discussed in these columns before. As pointed out (ENR March 27, 1952, p. 19), the resulting danger to the economy is accompanied by a threat to the morals and solvency of the country through the increasing temptation to avoid payment of such taxes.

There is another effect of a too-high tax burden that may be even more stultifying to progress—the removal of incentive. Crawford H. Greenewalt, president of the Du Pont Company, pin-pointed it in an address last week at the celebration of that corporation's 150th anniversary. In reviewing progress since its first little black powder mill was established on the banks of Brandywine Creek in Delaware in 1802, he said, "Those first Du Ponts, with today's tax-gatherer looking over their shoulders, could doubtless have provided for their families with adequate comfort, but the incentive to build for the future would in great measure have been denied them."

All too frequently these days one hears engineers and construction men remark, "What's the use of taking on another job, of expanding my organization and operations? Any profit will only go to taxes." The inevitable next step is to shy away from trying anything new even on the modest scale of operations that "will provide for their families with adequate comfort." That will be the end of progress.

The effect on construction, had the Du Pont Company followed this philosophy, is all too plain; for the explosives that it pioneered and progressively developed for greater efficiency, safety and usefulness have been the vital ingredient in many a construction achievement. Had it not adhered to the practice of making old products and processes obsolete by developing new and better ones as fast as research could show the way, Du Pont would never have made any contributions to construction progress.

But it did follow this philosophy, and as a result few names in American industry are as familiar to engineers and construction men as that of Du Pont. Not only has it given them explosives to meet their needs for ever more difficult and delicate blasting, it has in special and vital instances—for example, the Hanford Works for the atomic bomb and now the Savannah project for the hydrogen bomb—joined their ranks as designer and builder.

The Du Pont Company's justifiable pride on its 150th birthday can therefore be properly shared by everyone who makes his living from construction. And most important the warning in its president's address at the celebration—that the incentives that made the company's growth and contributions possible are in danger of being taxed away—is one that construction men everywhere must not ignore. If construction is to meet its responsibilities of building a greater America its will to achieve must vastly exceed its ability just to make a "comfortable living." It must have and retain its incentive to progress.

A patriarch passes

THE PASSING ON of T. Kennard Thomson, New York consulting engineer, calls for something more than the usual obituary giving the colorless facts of his biographical record. For nearly half a century his tall lean figure and genial face were almost as much a part of any meeting of civil engineers in New York as the principal speakers. And in more recent years, one seldom passed through the lobby of New York's Engineers' Club without a pleasant greeting from him.

In his heyday as a consultant there was no one whose word carried more weight in respect to deep foundation problems in New York City than did that of T. Kennard Thomson. His opinion was the outcome of a priceless combination of sound training in basic engineering, extensive practical experience and good judgment. Yet few of today's engineers will remember him for that. What will keep his memory alive longest was his unfailing interest in young engineers. He had something about him that made young men feel that he was genuinely interested in their problems and in what they had to say. It is a trait worth anyone's time to develop.

More road money for states

WHEN THE GOVERNORS met recently in Houston, Texas, for their annual conference, one of the resolutions they adopted urged the federal government to withdraw completely from the field of gasoline taxation, leaving that field exclusively to the states.

Presumably, if the federal government stops collecting gasoline taxes it will stop paying federal highway aid. That might be accepted by the states that pay the federal treasury more than they get back, but it would not be favored by those to whom federal aid is the life-blood of their highway programs.

All of which appears to put the governors' gas-tax resolution in the wishful thinking class. Nevertheless, it does have the advantage of again drawing attention to the gasoline tax as the best and most equitable way of raising more highway funds. Even though the federal government ignores the governors resolution, the way is still open for any state to add to its own gas tax.

If toll roads have taught us anything it is that the public is much more willing to pay freely for improved highway service than most highway administrators or state legislators believed possible a few years ago.

City of Philadelphia, Department of City Transit, Market Street Subway. Archt.—Private Plans; Contrs.—Geo. H. Flinn Corp., N. Y. C., Golder Constr. Co., Philadelphia; Sub Contr.—R. E. Carrick Co., Philadelphia; Engrs.—Howard S. Hipwell, Chief Engineer for the Department of City Transit; Lawrence Costello, Department Director. Pozzolith Central-Mixed Concrete supplied by The Warner Co., Philadelphia.

"Superior Concrete with POZZOLITH," Report Engineers of Philadelphia Subway

"Denseness for resistance to seepage, improved surface characteristics and durability" are some of the advantages obtained with Pozzolith Concrete, report the engineers of Philadelphia's new Market Street Subway.

Further evidence of the superiority of concrete produced with Pozzolith is the series of 50 cylinder tests made on this job. With a specified 3,000 lbs. concrete, Pozzolith Concrete averaged 3,210 p.s.i. for 7 days; 4,642 p.s.i. for 28 days, with many over 5,000 p.s.i.*

● ● ●

Whatever your type of job — whether industrial plant, reservoir, sewage treatment plant, dam, bridge, filtration plant, tunnel or housing project — Pozzolith Concrete provides important construction and service advantages.

Pozzolith produces these advantages — *at lower cost than by any other means* — because it disperses cement, reduces water, entrains the optimum amount of air and conforms with the water-cement ratio law.

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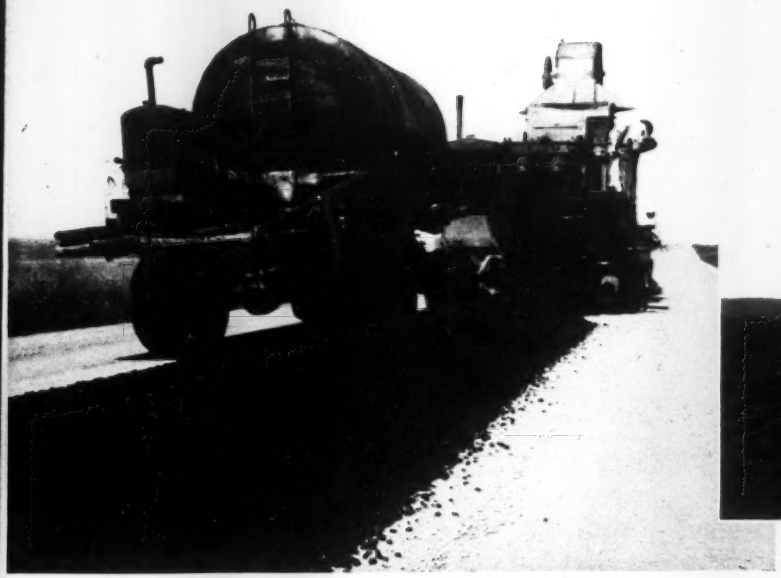
**From article in Engineering News-Record — October 11, 1951.*

Approximately 10,000,000 Cubic Yards of Pozzolith Concrete Were Placed in 1951

the MASTER BUILDERS Co.

CLEVELAND 3, OHIO — Subsidiary of American-Marietta Company — TORONTO, ONTARIO

A low-cost Texaco surface for a Black Hills highway



Texaco Slow-curing Asphaltic Oil and aggregate were mixed by travel plant in surfacing of this 10-mile section of South Dakota's Route 24 in the Black Hills area. Work done by the Northwestern Engineering Company, Rapid City, S. D.

The South Dakota Highway Department needed an intermediate-type of construction for 10 miles of State Route 24 in the Black Hills region. A travel plant and Texaco liquid asphaltic materials teamed up to give the State what it wanted—a serviceable, all-weather road at moderate cost.

A dense-graded aggregate was picked up by the travel plant from a windrow and mixed thoroughly with a Texaco Slow-Curing Asphaltic Oil. The mix was spread evenly over the base and compacted, providing a tough, waterproof surface two inches thick. Texaco Rapid-curing Cutback Asphalts were used to prime the base and to seal the new surface.

This South Dakota project is another example of the variety of ways in which Texaco Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils are successfully employed in the construction of roads, streets and airports. There are two reasons why your Texaco Asphalt pavement will stand up under whatever traffic and climatic conditions it is called upon to serve: (1) The experience of almost half-a-century goes into the refining of Texaco Asphalt products; (2) Every Texaco Asphalt material is a product of scientifically selected crudes.

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